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A FOREST POLICY FOR ONTARIO

REPORT OF THE ONTARIO ECONOMIC COUNCIL

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A FOREST POLICY FOR ONTARIO

A REPORT OF THE ONTARIO ECONOMIC COUNCIL



A FOREST POLICY FOR ONTARIO

a report of the Ontario Economic Council

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FOREWORD

This review of past and present forest policies was undertaken by the Ontario Economic Council at the suggestion of the Honourable Rene Brunelle, Minister of Lands and Forests of the Province of Ontario.

Its recommendations are, however, solely those of the Council and of the author of this report, Mr. Ian Butters.

Council's concern lies primarily with the efficient use, both long run and short, of the forest resources of northern and southern Ontario and their relationship to the growth of our economy in increasingly competitive foreign markets.

While the future world demand for forest-based products, related directly as it is to advances in living standards, appears assured, there is no like assurance that the people of this province will attain their fair share of the benefits of that demand unless and until forest policies, private and public, are properly attuned to the times.

Resource-based exports now account for some two-thirds of Canada's total export sales. The labour content of such is not, however, high.

If we are to move toward greater employment opportunities in the wood-using industries, we will have to reduce our production costs through specialization of product, rationalization of harvesting and of limits, and the introduction of a greater degree of private motivation in the proper use and regeneration of this significant segment of our renewable resources.

WILLIAM H. CRANSTON
Chairman



Under present conditions, as indicated by allowable annual cuts, some two-thirds of Ontario's renewable forest resources are going unused.

At the same time wood-using industries in other parts of Canada and of this continent are expanding rapidly.

No new pulp and paper mill has been built in Ontario for some 21 years and increases in capacity over that period have merely maintained the province's relative position.

The current surplus of wood could support the operation of several new pulp mills as large as any now in existence in Ontario.

Lumbering and many of the secondary segments of the wood-using industry reflect a similar lack of growth.

Future development of Ontario's northland and, indeed, of many of the more marginal land areas in the south are linked to forward forest policy.

Accelerating costs of transportation and of harvesting are limiting

SUMMARY

Ontario's international competitiveness in all aspects of the woods industry.

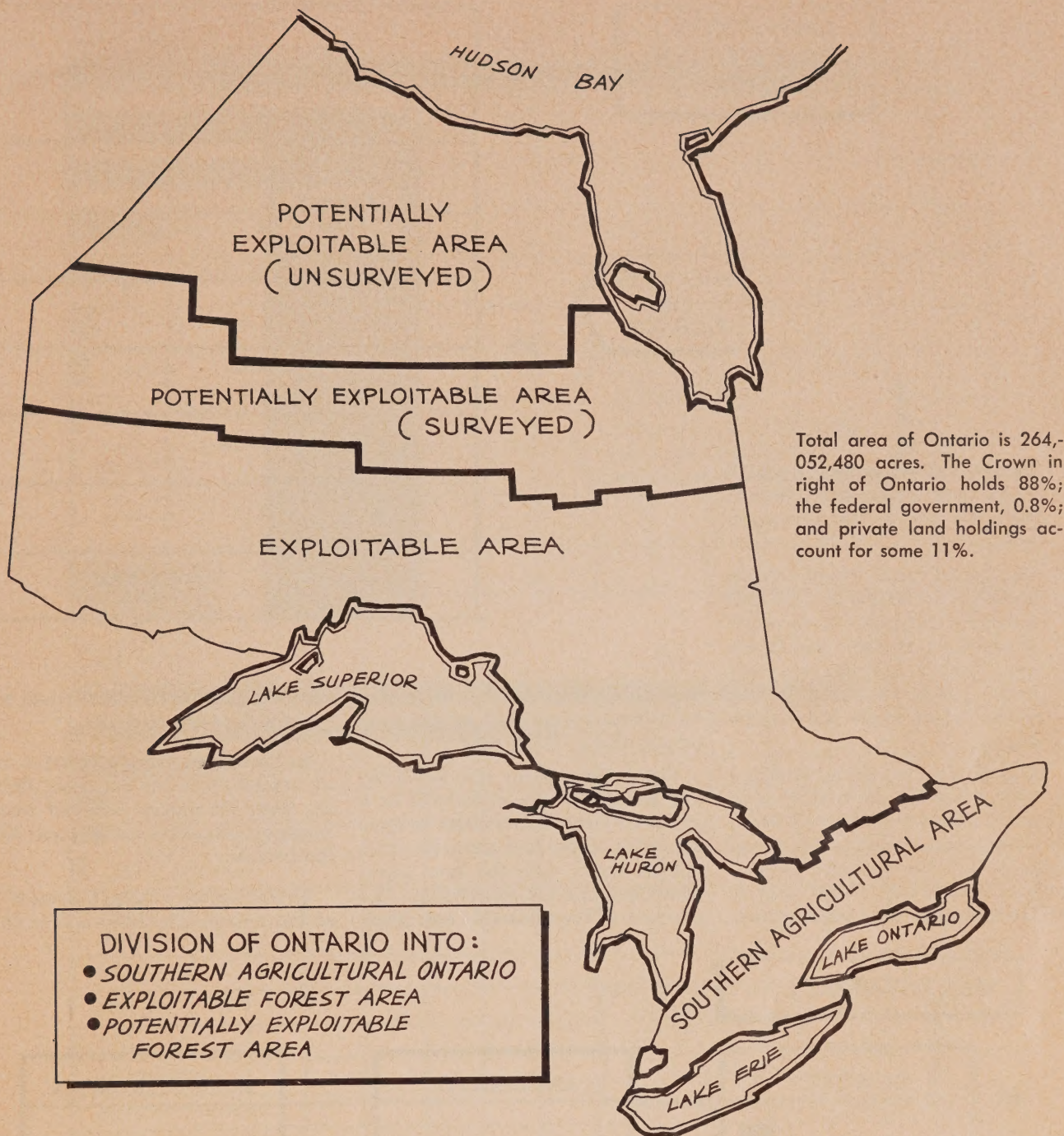
The decline in the competitive condition of the forest-based industries was documented 22 years ago in the Ontario Royal Commission on Forestry.

Many companies have, however, failed over the years to carry out adequate reforestation and regeneration programs and, in particular, research into and development of improved tree strains, fertilization, and harvesting productivity.



1. A significantly greater degree of integration of wood supply for pulp and paper and sawmilling operations is essential if returns from forest resources are to be optimized.
2. More adequate licensing areas should be made available to new forest-based companies wishing to establish in Ontario with existing idle license areas being reviewed and revised.
3. Consideration should be given to the establishment of a system of land tenure which would create for the companies involved a greater interest in the economics of silviculture and land management.
4. Hydro-Electric Power Commission of Ontario prime rates for the pulp and paper industry, which have increased significantly since 1953, should be reviewed in the light of overall provincial concern with regional development. Longer term power contracts should also be considered because of the scale of capital investment involved.
5. A governmental policy should be evolved which will balance the requirements of high cost water pollution controls as against the international factors determining economic growth within the forest-based industries.
6. Crown dues should be revised and transportation facilities developed to encourage the use of major volumes of surplus wood.
7. Ontario's competitive position in respect to the logging tax, now applicable only in this province, British Columbia and Quebec, should be reviewed and a more economic approach evolved for the measurement of "scaling" of timber.
8. Federal and provincial authorities should explore further a rationalization of the fine paper and paperboard industries to encourage export specialization.
9. High growth rate areas south of the French and Mattawa Rivers should be given higher priority in terms of governmental forest policy.

RECOMMENDATIONS



Problems and Potentials

105 MILLION ACRES

There are some 84 types of trees growing in Ontario's forests of which some 19 species have current commercial value.

Eight of these species and their sub-species are coniferous and the remainder are deciduous. Several species no longer appear in commercial quantities, owing in large part to

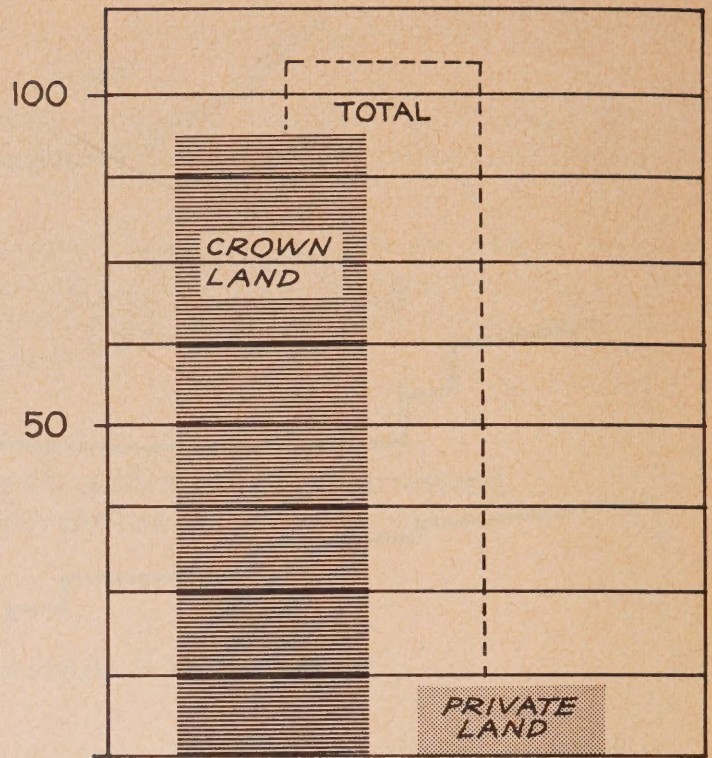
our forested land having been cleared for agriculture as in southwestern Ontario, and to extensive over-cutting, as in the pine forests of the Ottawa Valley. Even today, within certain sectors, regional over-cutting appears to be taking place with certain species as, for example, black spruce.

Our total productive forest area, 90 per cent held by the Crown, virtually all in the right of Ontario, and 10 per cent patented (private) land, exceeds 105 million acres and forms three distinctive regions, as follows:

1. The deciduous forest, consisting almost entirely of hardwoods, which extends over southwestern Ontario from the western end of Lake Ontario.
2. The Great Lakes-St. Lawrence forest which extends from the northern limit of the deciduous forest to the height of land separating the Great Lakes and Hudson Bay drainage systems. This forest consists of mixed hardwoods and

ONTARIO'S PRODUCTIVE FOREST

MILLIONS OF ACRES



conifers and is an area in which heavy over-cutting took place in the latter part of the nineteenth century.

- The boreal forest which extends north to the height of land and gradually disappears in the coastal plains of Hudson and James Bay. This is basically an ever-green forest interspersed with aspen, white birch and balsam poplar.

These forests have been calculated to carry a primary growing stock of some 242 billion cubic feet of wood. However this seemingly astronomical figure must be viewed in its true perspective. Almost half of the stock is limited to four species: black spruce,

jack pine, white birch and poplar, with black spruce and poplar comprising almost 75 per cent.

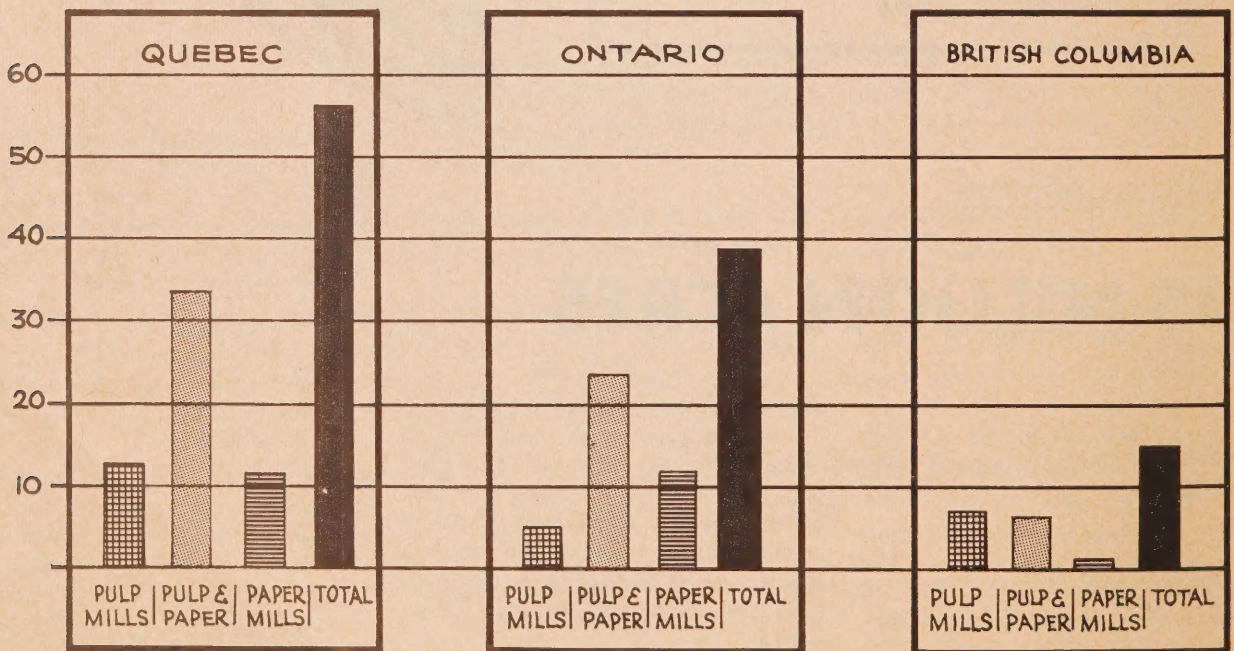
The portion of the resource actually and potentially exploitable on a sustained yield basis is closer to some 2.3 billion cubic feet annually or 27 million cords, with the four aforementioned species constituting 78.4 per cent of the allowable cut. Black

spruce and poplar alone account for two-thirds of this volume.

In the exploitable areas today, on an annual allowable cut basis, there are some 8½ million cords of wood surplus — some 60% conifers and 40% hardwoods.

To put it more succinctly some 67% of the annual allowable cut in On-

MILL LOCATIONS

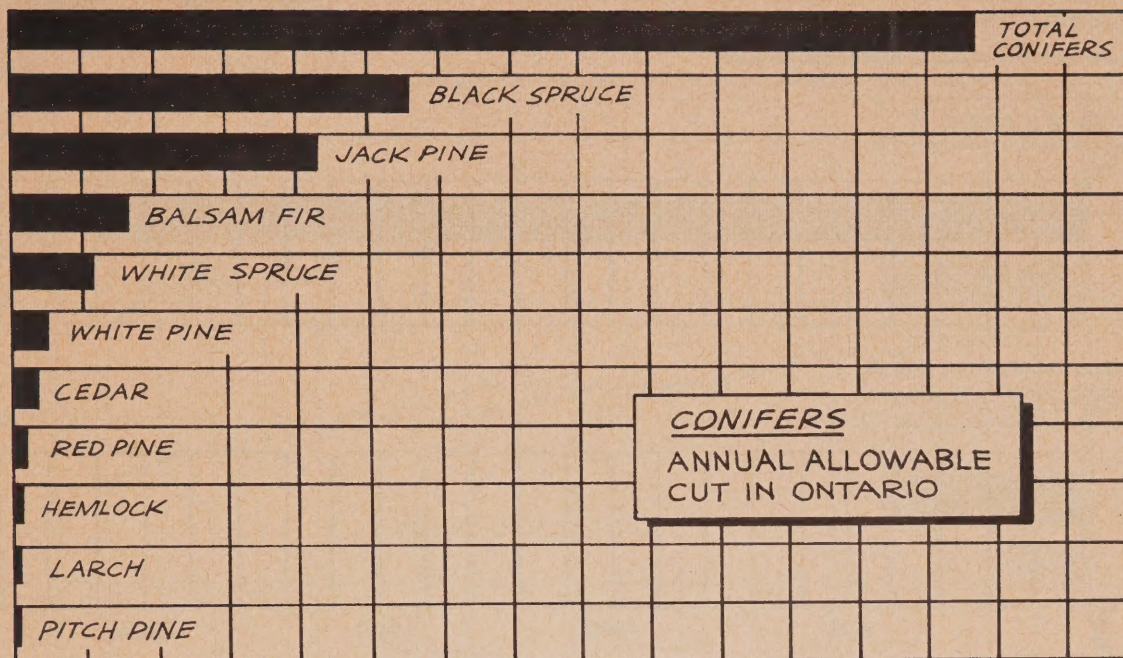


BILLIONS OF
CUBIC FEET :

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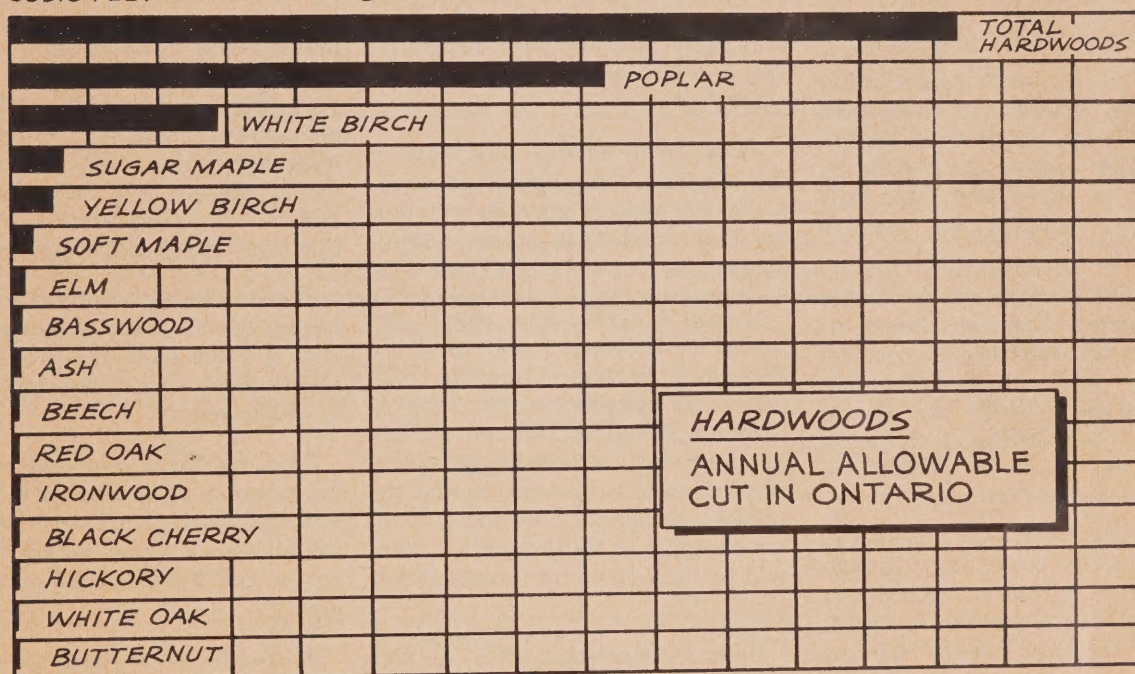


BILLIONS OF
CUBIC FEET

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1.0

1.5



SOURCE: THE FOREST RESOURCES
OF ONTARIO - 1963

tario's exploitable forests is going unused.

This figure becomes much more significant when it is realized that the surplus conifers alone; some 5,000,000 cords, are in excess of total current annual consumption of pulpwood and could perpetually sustain the operation of several new pulp mills as large or larger than any now in operation in Ontario.*

At this time projected outlays for expansion in Canada total in excess of \$2 billion and envisage construction of approximately the following

*U.S. Chamber of Commerce figures, which could be equally relevant for Canada, show that a pulpmill with 600 mill employees and 600 loggers will create for a community:

3,590 increase in population;
910 more school children;

number of new pulp and paper mills: in British Columbia 15, in Quebec 7, in Newfoundland and New Brunswick, 3 each, in Nova Scotia and

\$7,100,000 more personal income;
1,000 more households;
\$2,290,000 additional bank deposits;
30 more retail establishments;
970 more passenger cars;
650 more employed in non-manufacturing; and,
\$3,310,000 more retail sales per year.

ONTARIO'S PRODUCTIVE FOREST — 1966

ALLOWABLE CUT

ACTUAL CUT

CROWN LANDS



PATENTED LANDS



MILLIONS OF CUBIC FEET

500

1,000

1,500

2,000

Alberta, 2 each; and in Manitoba, 1.

However no new paper mills, other than converters, have been built in Ontario since 1948. Expansions, which increased capacity by some 25% in 1965-7, have done little more than maintain the relative position.

Moreover when one considers that the estimated standing timber in Ontario is just slightly less than the combined total of the standing timber in the Atlantic and Prairie Provinces, the unused annual surplus of 5,000,000 cords of conifers becomes much more pertinent.

Considering that many increases in production have come about through technological advances without an increase in the volumes of wood used, one must therefore assume that the problems now facing Ontario's pulp

and paper industry have been present, to a greater or lesser degree, for some time.

While many factors contribute to this situation, the pulp and paper industry has already gone on record to say that wood costs are most significant.

Indeed in 1967, in a paper presented at the annual meeting of the Woodland Section, Canadian Pulp and Paper Association, Dr. John A. Dawson, Economic Council of Canada, said that, "if wood costs in this region (eastern Canada) cannot be reduced in relation to wood costs in other regions of North America, there will be little scope for increased output."

Representing some 36% of end product cost in the pulp and paper

industry and in excess of 50% for the lumber industry, these costs have a very direct effect on the industries' competitive position. While other components are also relevant, it would appear that those involving labour and transportation have, at this time, the greatest impact.

Indeed average Ontario transportation costs alone range upward from 20% of wood costs and are amongst the highest, if not the highest, in North America.

Also, for quite a period of time, the pulp and paper industry in Ontario has been faced with probably the highest per diem labour rates of any of the world's major producing areas.

Within the sawmilling sector of the industry, which has faced a slow but steady decline after reaching peak production of 800 million board feet in 1908, the matter of procurement is cited as the greatest single current problem. But while procurement is an integral part of wood costs, availability and transportation play a much more significant cost role than that of labour.

For the pulp and paper sector availability does not appear to be a problem. Prior to construction of the pulp or paper mills, government assigned license areas sufficiently

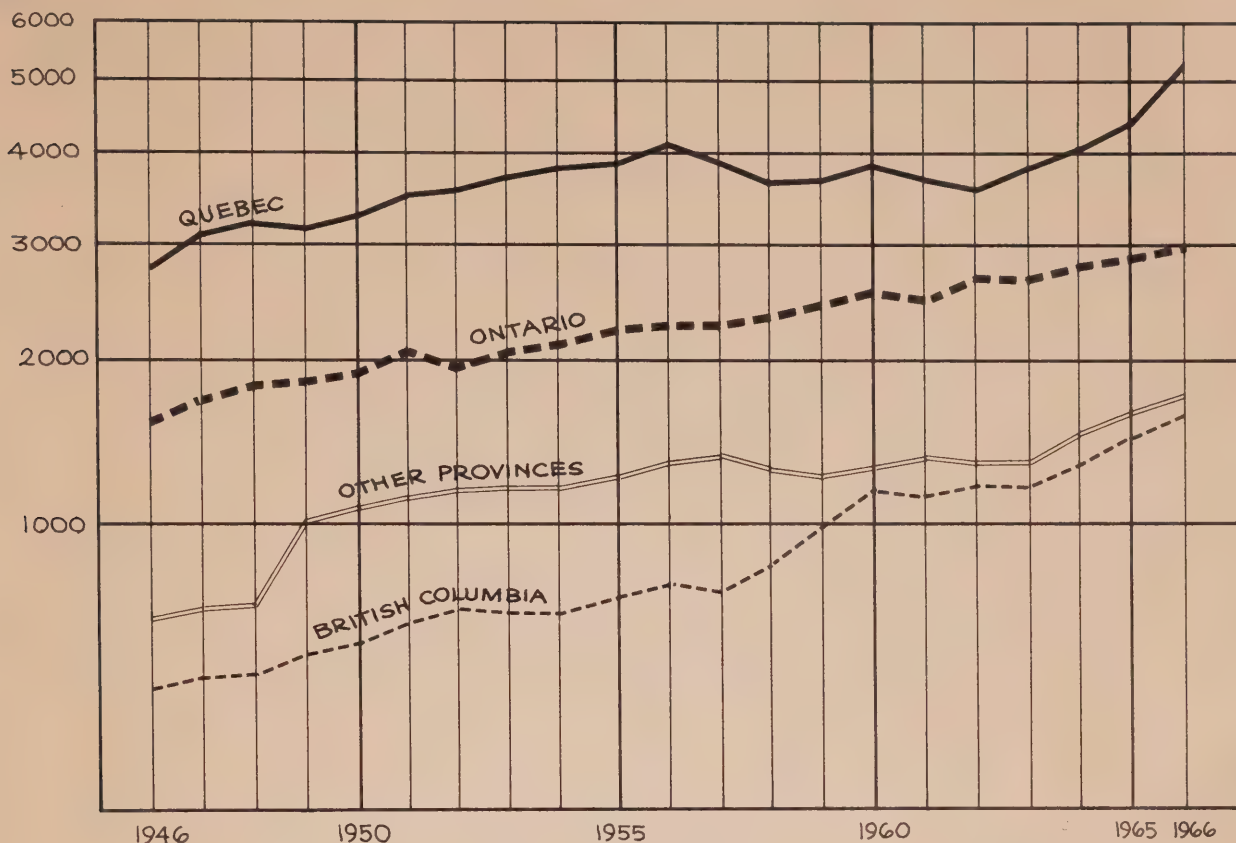
DISTRIBUTION OF PULPWOOD PRODUCTION COSTS IN ONTARIO

	%	At \$37 per 100 cu. ft.
Fell, limb, buck, bark	24	8.88
Transport: Stump to final landing, including road costs	20	7.40
Stump to final landing overheads	9	3.33
Stumpage, limit acquisition, protection, overhead	19	7.03
Final landing to mill stockpile, roads, river improvement, etc.	18	6.66
Scaling	2	.74
Limit operation overhead	8	2.96
	100%	\$37.00

Woodlands Section — CPPA

CANADA PAPER AND PAPERBOARD PRODUCTION BY PROVINCE • 1946-1966

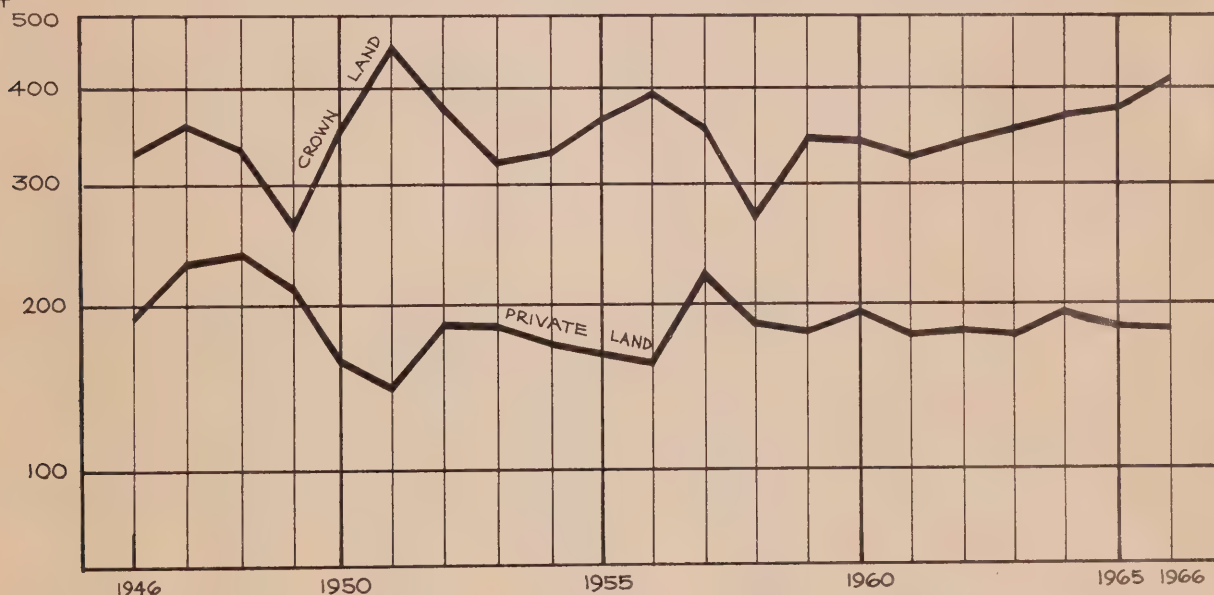
THOUSAND
TONS



SOURCE : D.B.S.

ONTARIO ROUNDWOOD PRODUCTION • Crown & Private Land • 1946-1966

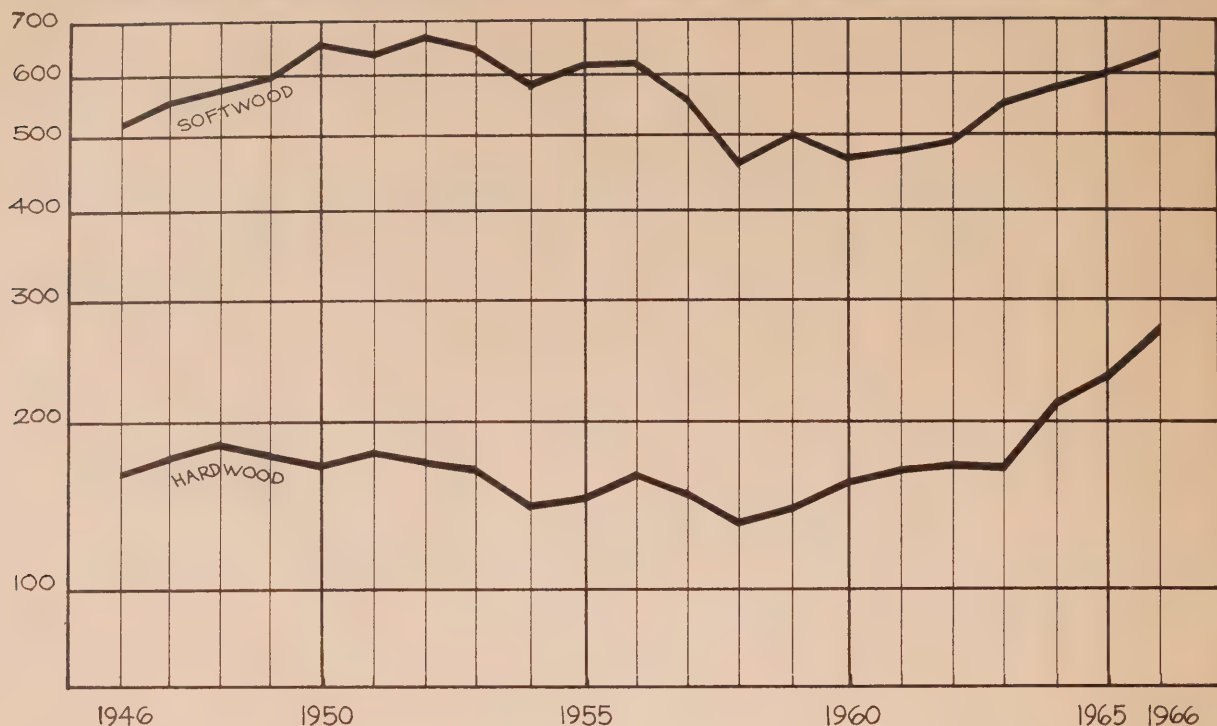
MILLION
CUBIC
FEET



SOURCE : LANDS AND FORESTS, AND D.B.S.

MILLIONS
BOARD
FEET

ONTARIO LUMBER PRODUCTION • SOFTWOOD AND HARDWOOD • 1946-66



SOURCE : D.B.S.

large to provide pulpwood on a sustained yield basis.

This was not the case, however, with sawmill operators who at no stage contemplated, as in other North American areas, more specifically the U.S.A., obtaining timber limits which would allow for a sawlog cut in per-

petuity. Accordingly sawmill operators are finding, more and more, that the timber they require is in license areas already held by pulp and paper companies.

In many cases fixed short term cutting agreements, seldom exceeding a seven-year period, have been reached

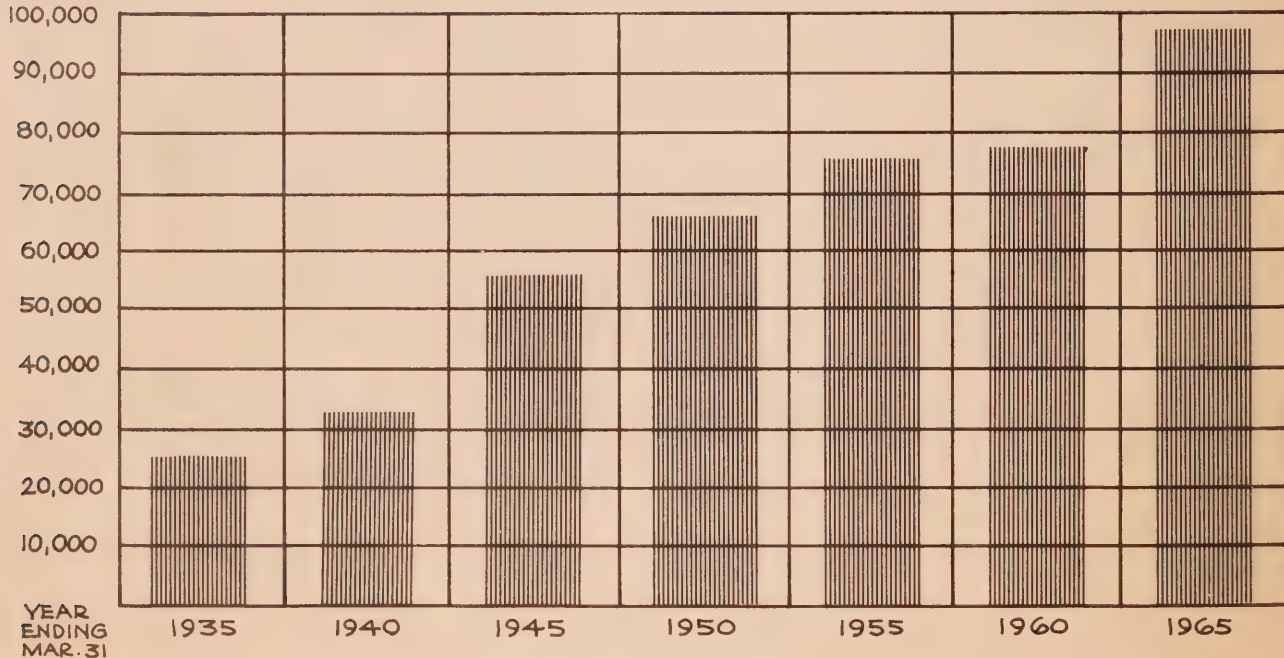
between pulp and paper companies and sawmill operators and with the concurrence of the Department of Lands and Forests. These third-party agreements are, however, generally cunit for cunit exchanges with no fixed price ratios prior to such exchange.

AREA
(SQUARE
MILES)

TOTAL TIMBER LICENCE AREA... ELEVEN PAPER COMPANIES*

1932 - 1965

* INCLUDES ABITIBI, DRYDEN, GREAT LAKES, SPRUCE FALLS, ONTARIO-MINNESOTA, MARATHON, K.V.P., KIMBERLY-CLARK, E.B.EDDY, ONTARIO, DOMTAR



With pulp and paper companies holding longer term leases on license areas and sawmill operators requiring timber to remain in business, the latter are at a disadvantage in such bargaining. Indeed certain pulp and paper companies apparently normally seek a significant profit on exchanges of timber prior to processing.

This general situation was apparent even in 1947 when it was stated in the Report of the Ontario Royal Commission on Forestry "that too many of Ontario's sawlogs are located on pulp wood concessions, both domestic and export. If the lumber industry is to continue to exist, these sawlogs must be diverted to it, instead of being converted to pulp and paper for which smaller logs serve equally well."

The same report said also "that unless vigorous remedial measures are soon taken, the lumber industry will continue to diminish in importance to such an extent that before twenty-five years it will be classified as a

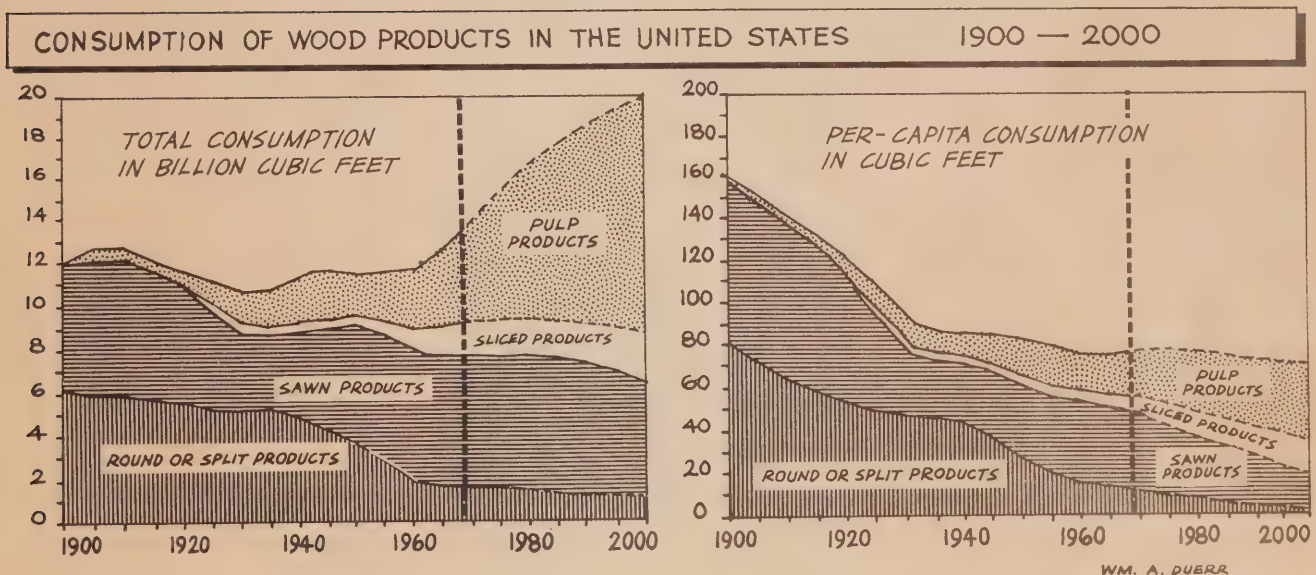
minor industry, which would be a major tragedy."

In the intervening 22 years limited remedial action has been taken. However it is questionable whether the matter of supply has been the only factor contributing to the present state of Ontario's lumber industry. William A. Duerr, Professor of Forestry Economics, College of Forestry at Syracuse, and an internationally recognized authority, possibly best summarized the situation in 1968 when he said: "the prime agency in the long trend of wood use is economic development, notably the rising productivity and value of human effort. Economic development has accelerated the use of reconstituted wood products and applied the brake to products in their natural form. During much of the twentieth century, the results in terms of total wood consumption has been a stand-off. In the years ahead, acceleration will become the dominant force, total wood use will rise and the decline in per-capita use will be checked."

This would seem to support the view that Ontario's forest industry can only be truly competitive if pulp, paper and sawmilling operations are more closely integrated.

To date, in Ontario, there has been little real accommodation between these two primary segments of our industry. However in other more competitive areas, e.g., Sweden, British Columbia and the United States, integration evolved within the natural growth of the industry. In Sweden operators initially cut timber to make charcoal for iron ore smelting, moved later into the production of lumber and latterly to pulp and paper. In British Columbia and the U.S.A. major pulp and paper companies are outgrowths of logging companies with the wholly integrated operations we know today.

Ontario's forest industry must, therefore, examine carefully the benefits that might be gained from integrated operations if it hopes to improve its internationally competitive position.





Forest Management

TOO LITTLE WAS DONE

Much of the forest land in Ontario, which is classed as submarginal agricultural land, suffers from the fact that the lumbering process was considered for many years a mining operation.

Timber was removed and there was little investment in the regeneration of a second crop. The land was without crop for many years or was producing inferior species.

The resultant wastage was not always apparent to the general public, particularly since the advent of the term "sustained yield" in forest management.

The impression is often created that management problems have been solved when one reaches the stage of "sustained yield". What is actually meant by "sustained yield", as the term is popularly applied, is merely that we have succeeded in gearing the productive capacity of the manufacturing plant to fit that of the area supplying the plant for the current rotation. In fact, however, if the production of timber from an area is one-third of its potential then we are merely operating one plant where we should have three.

Efficient forest management means, first, the using of present stocks of

mature timber to best advantage by satisfying the demands of established industry and encouraging new industries to use up mature forests before they are lost through decay. The second and equally vital responsibility of forest management is the regeneration of a second crop, as good as, or better than the first, and its maintenance at maximum growth to maturity.

Unfortunately, over the longer term, little has been done in these two regards by many of the operators, both pulpwood and sawtimber, cutting on Crown license areas. Indeed producers who cut within 30 miles of their mills some 45 years ago, have had to extend their operations outwards until today they haul distances of 125 to 150 miles and with little possibility of reversing the trend. As this outward extension continues, it not only increases wood costs by reason of capital outlays for access but increases the cost of haulage.

The forest-based industry, itself, must be largely held responsible for this situation. While it is recognized that timber growth rates are low compared to other competitive producing areas, more particularly the south-

eastern United States and British Columbia, and that timber in our boreal forest could take 60-80 years to reach merchantable size, if proper reforestation and regeneration programs had been enforced when initial licenses were granted, outward extending might have at least been limited. It was partially in recognition of this situation that, only as late as 1961, the Department of Lands and Forests assumed direct responsibility for regeneration and reforestation of Crown lands under license.

Moreover reforestation under the Department is undertaken on a shared-cost basis, with the taxpayers meeting the larger share.

Data compiled in the U.S.A. indicates that intensive forest management costs approximately 73¢ per acre annually.

For Ontario, with a productive forest area in excess of 105 million acres, this could mean, if we decided to maximize our forest potential, an annual outlay of almost \$80 million.

It is obvious under our present system of forest tenure and taxation, which in 1966-67 provided only some \$14.5 million in revenue through Crown dues, that such a significant sum could only be raised by a very major increase in Crown charges levied on operators. This could have but one result, a drastic increase in wood costs, and is, therefore, obviously impracticable as a single, immediate step.

Nevertheless if we are convinced

that future generations should be ensured the use of adequate stands of timber in their times, we must undertake now more intensive management practises while there are yet sufficient mature forests to aid materially in the cost of establishing the second crop. If money for this purpose is not provided from the operation of the present stands, we will eventually be in the position of having to rely on funds made available from the consolidated revenue of the Province to promote a business that should be self-supporting.

All of the procedures which promote the establishment of the second crop, except planting which is economically feasible in only few locations, are related to the cutting of the timber and must, therefore, be practiced by industry. If government is to insist on the proper regeneration of an area, it must have funds to pay for work undertaken in this regard and the necessary funds must come, as far as possible, from the operation of the mature timber taken from the area.

It should also be noted that accounting principles used throughout the industry attribute profit exclusively to the processing of raw material. Efficient forest management will only be realized when it is accepted that profit is also a function of growing the raw material. The elements of the solution could lie in a revision of present accounting methods.

Nevertheless we must recognize that, whatever policy may be adopted, it must incorporate a means of directing significantly larger sums than heretofore into forest research and management.

Private operators allege that their assured occupation of licensed land is currently too short to justify long-term investment in research, regeneration and other aspects of improved management. The governmental position is that enforcement of proper practises is virtually impossible without the "stick" of short-term cancellation of license. Under present circumstances, however, which call for public funds to support the bulk of regeneration, the latter tends to spread over large areas rather than, as it should be, concentrated where the yield is highest.



BEFORE and AFTER 40 years—the same road on the Normandale plains near Lake Erie.



MATCHING SUPPLY TO NEED

There is evidence that the present system of timber licensing is not equitable. One paper company, for example, reportedly has under long-term agreements more than forty townships where virtually no cutting has been done in 20 years. It also owns in excess of 669,000 acres of patented lands and holds cutting rights to the year 2010 on a further 850,000 acres.

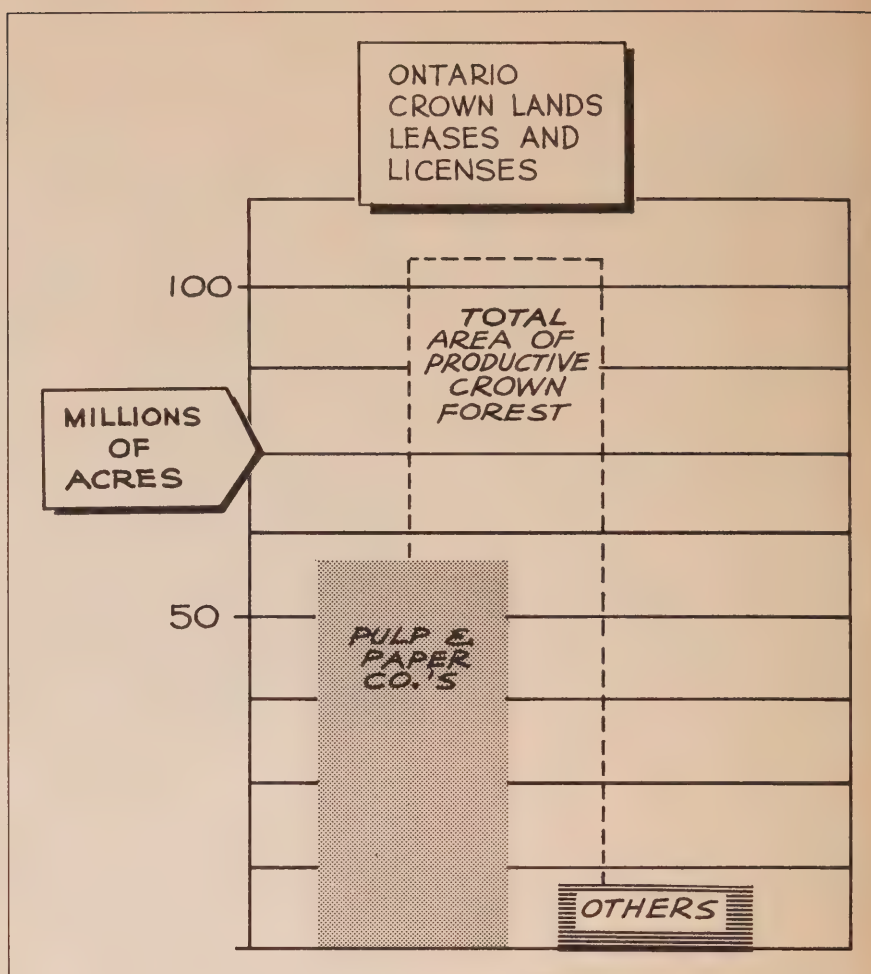
Furthermore, from data now available, it would appear that the annual increment of Ontario's boreal forests is in fact significantly higher than was estimated earlier when many of the longer term licenses were granted. Some of the older agreements have been based on an estimated annual increment of four to five cubic feet per acre, in a formula of 1:1:1*. However experience has shown that the actual range is 19-23½ cubic feet per acre and there is no record of a combined annual loss factor being reached by a major licensee in the proportion assigned.

Accordingly, an acceleration of the review of the larger existing pulpwood and timber license areas is indicated with a view to determining the over-all production potential, on a sustained yield basis, considering current requirements, capacity and possible expansion of both sectors of the industry.

It is unlikely, however, that such action could at this time provide any major cost reduction for the sawmilling industry. The statement made in 1947 by the Ontario Royal Commission on Forestry is still valid, too many sawlogs are located in pulpwood concessions.

Recommended at that time was an approach to overcome this problem. It was suggested that individuals or corporations holding limits or operating mills should unite to form "forest

*A 33⅓% allowance for annual cut, a 33⅓% allowance for loss through fire and a 33⅓% allowance for loss through infestation.



operating companies". All woods operations within defined areas would be pooled. Timber allocations would be dependent on share-holdings and based on requirement. This proposal might still have some merit, particularly where several companies operate contiguous license areas, and should be re-examined in light of the present situation.

It has also been suggested that steps be taken to encourage a more rapid expansion of integrated logging whereby timber companies would have access to sawtimber or pulpwood concessions.

This proposal, only a slight modification of the present licensing system, still leaves the logging industry to deal with pulp and paper companies largely on an individual basis. Nevertheless, if equitably regulated, it could lead to a significant improvement over the "hand-to-mouth" existence under which many, including larger sawmill operators, exist today.

In this latter regard, the Department of Lands and Forests might well consider the desirability, in certain defined areas, of expanding the present minimum cutting diameter

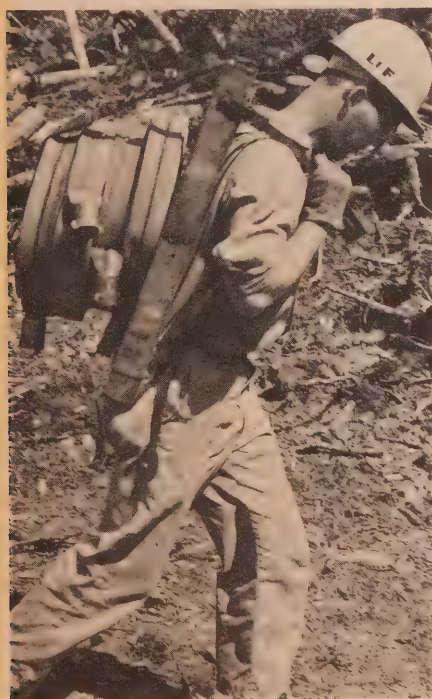
regulations set out in Schedule 3 of the Crown Timber Act, to ensure that wood is channelled to its most economic end use.

However, any new policies must take into account the prior rights and current investment, under existing agreements, of operating companies which have had long-term active involvement within specific license areas. It should not be arbitrary but should offer some reasonable alternatives. It should aim at maximizing wood supplies and minimizing wood costs for the entire forest industry and it should ensure an improvement in woods management over the past practices of the majority of private licensees and/or land owners. It should further ensure a larger private contribution beyond the obviously inadequate current annual forest management charge (formerly designated "ground rent" and "fire protection" charges) on Crown land of \$27.60 per square mile.

A practicable solution to the matter of equitable wood supply might be achieved by striking a balance between the forest-operating company concept, put forward in 1947, and



In the air and on the ground Lands and Forests provides fire protection services for both private and public land.



more recent proposals concerning integrated logging. However the elements of any solution will only be established after a systematic regional review has been undertaken by the provincial government, encompassing all licenses. Such a review would, perforce, examine the current and projected wood requirements of each operator, the current and potential yield of the license areas, access and the many other factors which relate to procurement. It would also include an appraisal of the potential inter-relationship of the woods operations of companies operating in a specific region. Indeed it might well, in many cases, lead to an exchange or significant revision of present holdings.

It is recognized that the mere suggestion of such a proposal might be looked upon by some operators as an anathema. Corporations, answering to stockholders, must try to maintain an adequate level of annual

profit. To do this they are forced to adjust to hard day-to-day economic facts making medium-term, let alone long-term, planning difficult. At the best, forest management is a longer term concept which can be carried on more consistently by the province and the department should not be deterred from undertaking such a review of current holdings.

Nor should we rule out completely the possibility of private purchase of available Crown forest land for timber production. In both Europe and parts of the United States it has been possible for private land owners to make the growing of wood on a continuing yield basis economically profitable. If an operator were required to pay the market price for free hold rights and to invest sufficient funds to ensure a high annual level of timber productivity, he could make a great contribution to forest management in Ontario.



Power saws reduce cutting time and work force by over one-half.

Labour and Mechanization

WORK FORCE TO DECLINE 75%

Since 1950 a number of new and improved harvesting methods and machines have led to an increase in logging productivity. However even greater opportunities for cost reduction still appear to exist. These lie primarily in the reduction of labour content in felling and trimming and transporting wood from the stump to the intermediate landing.

Current logging methods, using skidders and forwarders, are not providing sufficient per unit cost reductions to keep Ontario's industry competitive and companies are exploring and developing continuous flow logging.

While the latter provides some very definite advantages, e.g., a reduction in inventory costs and the elimination of handling costs incurred by the movement of logs in and

out of storage, non-continuous logging methods do have some definite advantages. A breakdown in one operation does not shut down the entire process and it is not necessary to close-match the capabilities of the various components of the operation to avoid idle capacity.

However in recent years a trend to more continuous logging methods has been noticeable and is represented in the on-going development of fully mechanized, short-wood, tree-length and full tree logging concepts.

In Ontario the development of mechanized systems has generally progressed at a faster pace than any other area in Eastern Canada.¹ A very

¹In this case Eastern Canada is considered all of that area lying east of the Rocky Mountains.

major factor affecting this development has been the fact that Ontario wage rates are significantly higher than those in other jurisdictions.

However the rate of mechanization appears to be doing little more than holding the line against current wage increases.

If the industry hopes to achieve appropriate scales of economy in this area it must more actively follow-up technological advances as they relate to woods operations.

It has already been predicted that owing to mechanization Ontario's woods work force would decline from its peak of 25,464 workers in 1949 and stabilize at about 6,000 in the mid-1970's. In 1966 the total number of production and related workers stood at 9,794.

To emphasize this declining re-

quirement for woods production workers, the representative of one major Ontario company, currently employing some 2,300 men to produce 500,000 cords of pulpwood annually, has predicted that the same volume of wood will be produced by approximately 415 men when full use is made of mechanized equipment now coming into production.

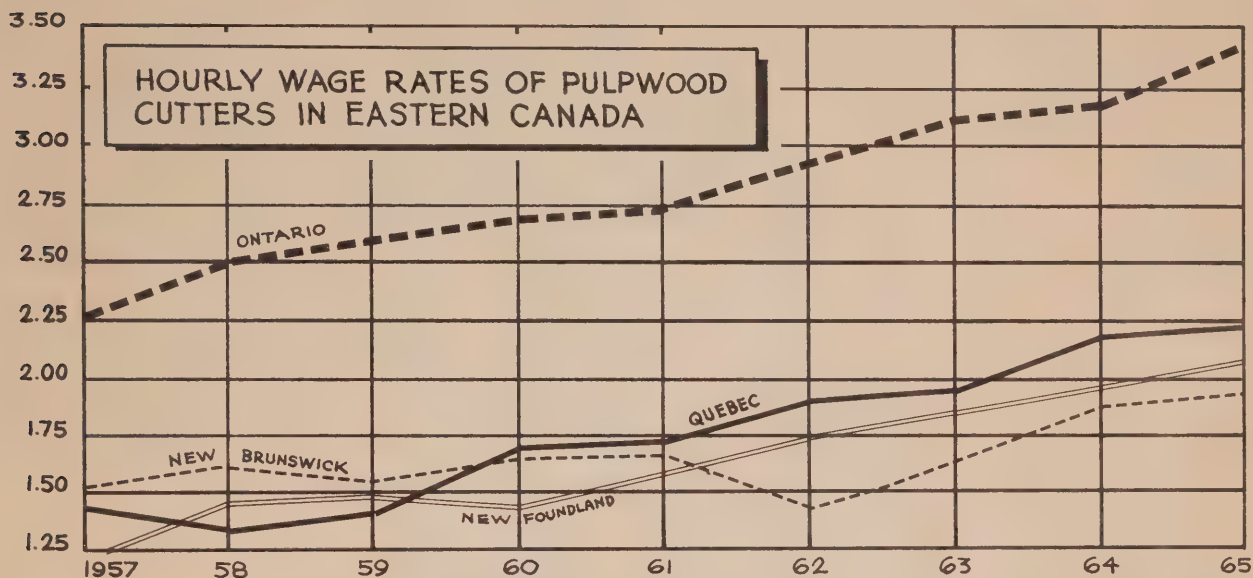
However capital outlays required

to develop and achieve such economies are, in most cases, beyond most pulpwood suppliers and a large number of saw mill operators.

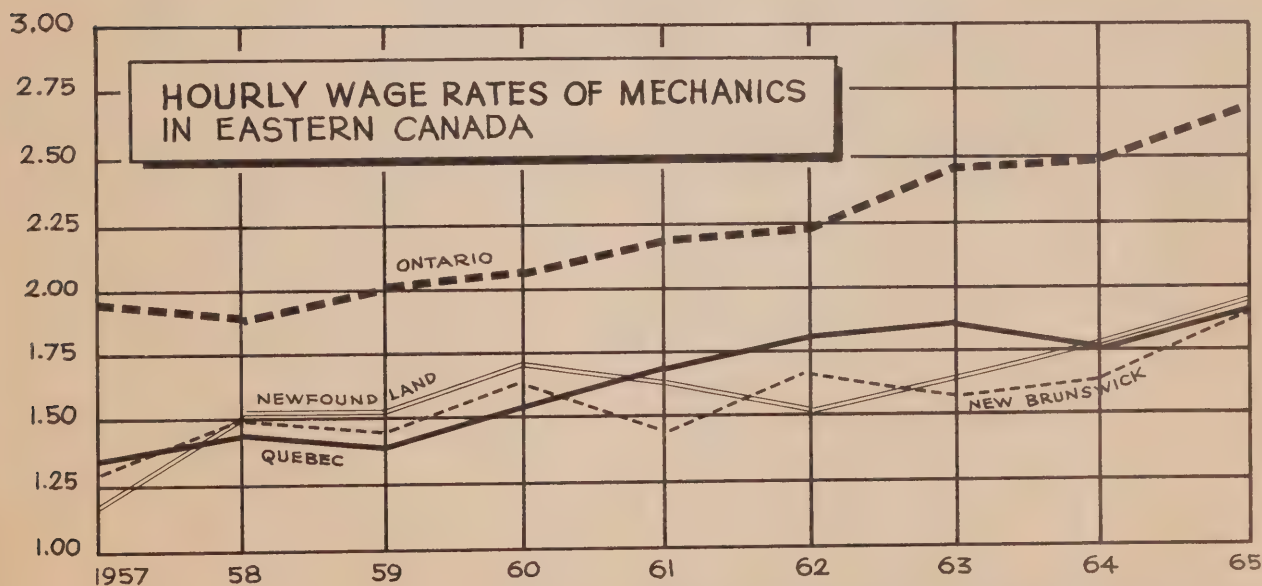
Accordingly the province might do well to consider establishing a loan fund to assist smaller operators to attain a higher degree of mechanization in present operations. In Australia, for example, the government makes available on loan to these

operators new equipment as it is introduced. The period of loan, two to four months, is considered sufficient to prove for the operator the economies of the system. He is required to pay the cost of transportation of the equipment to and from his site and the costs of maintenance and operating throughout the period of loan.

A similar scheme might have merit in Ontario.



SOURCE: CANADA DEPARTMENT OF LABOUR, WAGE RATES, SALARIES, AND HOURS OF LABOUR, 1957-65



SOURCE: CANADA DEPARTMENT OF LABOUR, WAGE RATES, SALARIES, AND HOURS OF LABOUR, 1957-65

FACTORY JOBS REPLACE MEN IN THE FORESTS

Tree harvester (below) limbs, tops and fells in single operation. Timberjack (right) skids tree-length logs to loading points. Traxcavator (below right) hoists sawlogs onto truck.





Hydro Electric Power Rates

PULP AND PAPER INDUSTRY USES 13% OF CANADA'S ELECTRICAL ENERGY

One of the most important factors in the successful operation of forest based industries, particularly the pulp and paper segment, is the availability of ample quantities of economic power.

Indeed when it is considered that about 100 horsepower of mechanical power installation is required to produce one ton of newsprint per day or, stated another way, approximately 1,600 kilowatt-hours is required to produce one ton of newsprint, it is understandable why the major initial development of the Canadian indus-

try took place in Quebec, northern Ontario and, subsequently, British Columbia.

The industry consumes annually in excess of 22.4 billion kilowatt-hours of hydro-electric and thermal-electric energy which represents more than 13% of the net total energy consumed for all purposes in Canada.

Of the total electric energy consumed by the pulp and paper industry, approximately one-quarter is generated by the industry, the balance being purchased from other power producers.

Close to 90% of all electrical power now generated in Canada is produced by hydraulic installations and the remainder, until this time, largely from thermal electric plants.

In Ontario the constant pressures of industrial and domestic growth resulted in the development of our relatively low-cost hydro power resources at a more rapid rate than in other Canadian jurisdictions. During this developmental period, over which an integrated provincial power transmission network was lacking, the energy requirements in certain areas were augmented by thermal generated and purchased power. Today only some 11.9 million potential Bhp hydraulic power remains to be developed, largely in less accessible more northerly regions, and the chairman of the Hydro-Electric Power Commission, has stated that by 1970 or 1971 thermal power will account for more than 50% of the total power produced in Ontario.

In some areas domestic consumers had to rely, for a long time, on "industrial power". Indeed the Ontario-Minnesota Pulp and Paper Company has since 1905 been committed to supply at a fixed low rate the continually growing power needs of the

UTILIZATION OF ELECTRIC ENERGY IN CANADA 1967

(Dominion Bureau of Statistics)

	Total Electric Energy Consumed for all purposes (thousands of kwh)	Total Electric Energy Consumed by the Pulp and Paper Industry (thousands of kwh)
Ontario	63,846,466	5,365,847
Quebec	65,377,066	9,722,763
British Columbia	24,720,292	4,030,515
Other Provinces including Yukon and NWT	14,985,688	3,307,655
Canada	168,929,512	22,426,780

town of Fort Frances. A somewhat similar situation has existed for other pulp and paper companies, none, however, being committed in the long-term manner of the Ontario-Minnesota company.

Until the early fifties, major pulp and paper loads served by Ontario Hydro were concentrated in the Lakehead area of northwestern Ontario. For many years the companies in that area benefitted from long-term contracts at low fixed rates. However from 1950 to 1960 other pulp and paper companies, including Ontario-Minnesota, Dryden Paper, Eddy Forest Products (formerly KVP at Espanola), Spruce Falls, and American Can of Canada (formerly Marathon Corporation of Canada), in development and expansion, contracted with the HEPC for substantial blocks of power. Over this period the power rates of the Lakehead pulp and paper companies were brought into line with the rates applicable to these latterly supplied companies. Finally in 1966 all industrial customers were made subject to the Ontario Hydro's uniform rate policy.

The foregoing has had a very marked effect on the cost of electric power for almost all Ontario's pulp and paper producers.

One producer has said that between 1953 and 1959 it has meant for his company an increase of 102% in the cost of prime power, with further increases already forecast by the HEPC. He notes that over the same period the selling price of newsprint has increased only 17%. Another producer has calculated that for his company the 1969 rate increase for prime power was 19.2% and that the already indicated increase for 1971 will be at a rate 36% in excess of that of 1968. The 1969 rate increases alone have been calculated to increase the production costs of some newsprint as much as 72¢ per ton.

Many objections with regard to the rising trend of prime power rates have already been made known by the concerned companies. The more cogent are judged to be:

i) that three-year prime power contracts are too short to allow for realistic short-term, let alone medium-term, corporate planning and that five-year, or, more ideally ten-year contracts should be negotiable;

ii) that the potential available to

government to influence, through the HEPC rate structures, regional development may have been overlooked when the uniform rate policy was adopted in 1966.

Ontario Hydro's position is that, "in general, Ontario Hydro rates are about one-half the average of those in the United States and are comparable with most other jurisdictions in Canada. There are areas where lower power costs prevail. The Tennessee Valley Authority has lower across-the-board power costs and rates than Ontario Hydro. Rates are also considerably lower in the Bonnevill area of the State of Washington. There is evidence that some selective industrial rates in Quebec, Manitoba and British Columbia may be lower than Ontario Hydro's 1969 level. Since these rates are not published, it is difficult to be accurate but it has been suggested that in some cases they may be 10% to 15% below those of Ontario Hydro's current rate. While some jurisdictions are using incentive or special rates to selected industries as a tool for economic development, it would appear that some time in the future the industries benefitting from such incentive rates will

be required to pay the same rates as other industries or the supply authorities will be accused of cross-subsidization and discrimination by these 'other' customers."

It should be noted, however, that within the past year a major foreign pulp and paper producer is reported to have advised the Department of Lands and Forests that a planned expansion into the province has been cancelled in that operations in Ontario would not be economically viable, vis-a-vis other provinces, primarily by reason of Hydro power rates. Such statements, if proven accurate, should be of concern to Ontario.

In conclusion, it appears that there is little doubt that the competitive advantage of Ontario's forest-based industries has been eroded, possibly more so than other industries, by rising energy costs in the province.

Accordingly it is recommended that Ontario Hydro explore every possible means to restrain possible future rate increases for prime power and that its rate structures be reviewed to determine whether they can in any way contribute to the provincial goals for regional economic development.

Ontario's newsprint competes in world markets.





Large volumes of water are used in almost all stages.

The Battle will be a Long One

ATTACK ON POLLUTION

During the mid-1960's, public awareness of the polluted conditions of some of Ontario's water escalated. Today the demand for "clean" water can be heard everywhere.

Ideal clean water, however, is difficult to define. "Clean" water cannot be considered to be pure water which contains nothing but H_2O . Such water is corrosive, tasteless, infertile and will not support life.

Clean water then is H_2O plus other substances such as calcium and copper etc., in amounts that enhance its usefulness, but not in amounts detrimental for various uses.

Man, as a result of technology, adds many natural and synthetic substances that are not normally found in water. Clean water, therefore, may contain no more of these than can be tolerated, depending on the use to which it is put.

For municipal, industrial and agricultural uses, the water is, or can be, removed from the watercourse and treated to attain the desired quality. For water-based recreation and the production of aquatic life, the water must meet the minimum requirements in the watercourse and for this reason the permissible limits are more stringent for aquatic life than for other uses. However, even here, the permissible limits for any use and

the impairment that might be expected if these limits are exceeded are yet to be defined.

It is this latter aspect which affects more directly forest-based industry, particularly the pulp and paper segment.

Large volumes of water are used in almost all stages of paper production and pulp "fines" dumped indiscriminantly into streams can cause major sedimentation problems. However chemical pulping processes which result in the production of "waste liquor", containing lignin and other chemicals removed from the wood, possibly constitute the greatest pollution potential.

Many major by-products are derived from these "waste liquors", including tall oil, which is a valuable source of unsaturated fatty acids and resin. Others include lignin, lignosulphonates, and the sugars with which they are associated which are valuable chemical raw materials used for making ethanol, yeast, vanillin, etc.

However the quantities of waste liquor, in relation to the volume of the product produced, are so prodigious that there is a limit to the amounts that can be processed. For example, one Ontario mill alone, Ontario Paper at Thorold, produces

from its waste in excess of 90% of the free world's supply of vanillin or artificial vanilla flavouring.

For most mills the problem is one of disposal which has been largely met by pumping the effluent into watercourses. However, some paper-mills are already being required to undertake primary treatment which is costly and has a very direct affect on the industry's internationally competitive position.

Such situations often lead to highly emotional confrontation between the naturalists and conservationists and those who are primarily interested in fostering industrial development and growth.

Ontario cannot exist on "pure" or "clean" water alone. Neither can it prosper only by industrialization. Some accommodation must be made between these positions to allow an optimization of forest resources.

As noted earlier, water for domestic, agricultural and industrial uses can be made available through treatment. The most direct consequence of water pollution, therefore, seems to be on aquatic life.

In an economic or socio-economic sense this could indicate that the primary impact of water pollution might be its effect on the recreational and habitable potential of an area.

Accordingly the recreational and industrial potential of each situation must be weighed carefully, particularly in less-developed areas, with a view to optimizing the province's economic growth with the least possible pollution.

However one cannot overlook that, by failing to take action over a very long period of time, the people of Ontario condoned and conceivably

gave tacit approval to the more obvious cases of industrial pollution, no doubt to achieve industrial growth. It seems, therefore, unjust and indeed economically impracticable to turn around at this late date and burden industry, in such a short space of time as the public is now demanding, with the massive full costs of pollution abatement. If such a course was to be followed the pulp and paper industry which sparked the economic growth in many of our northern communities would be particularly hard hit.

Accordingly it is recommended the government consider:

- i) grants towards the capital cost of pollution abatement facilities; and/or
- ii) loans or guarantees to help finance the industry portion of the capital costs involved;
- iii) tax incentives for expenditures on research or pollution abatement.

Crown Dues

ECONOMIC VIABILITY

Under existing legislation, Crown dues in Ontario are established on the basis of fixed minimum charges (stumpage) for individual species, and are set out in the Crown Timber Act. More generally the dues are fixed after negotiation and can include a bonus and an upset price dependent on stand density, quality, location and other related factors. The dues are subject to review every three years.

These charges also contribute to wood costs and are at present cited as being in the range of 9% of pulpwood costs and higher in varying degrees for sawtimber.

Waterborne traffic (below) to the province's forest based industries is declining.

Crown dues are an outgrowth of early legislation pertaining to our forests and do not necessarily take into account the more recent introduction of corporation taxes. In their present form they convey to the public a traditional direct return for timber taken from Crown lands and reflect part of the cost of reforestation of these lands, undertaken by the Department of Lands and Forests.

Under present legislation, Crown dues cannot generally be set below the fixed minimum stumpage fees in the Crown Timber Act. However when one considers that the lowest stumpage rate, for example, for spruce pulpwood is \$2.80 per cord, and that large idle mature and over-mature stands of this species exist in northwestern Ontario, particularly that area west of Hearst and north of the CNR transcontinental line, some downward adjustment of fixed minimum stumpage charges seems warranted.

This situation was probably put more properly in focus recently by one Ontario forester who said, "this is the dilemma facing foresters in Canada. The greatest foe of intensive forest management in this country is the large reservoir of Crown forests, mature and over-mature, at a nominal stumpage. What do we do . . . give the stuff away or burn it?"

Two solutions could be available. Firstly, there might be made an overall reduction of fixed minimum charges to a range of \$1-\$1.50 per cord with the Department of Lands and Forests applying a bonus as warranted. Secondly, minimum fixed stumpage charges might be set on a regional basis, taking into account such cost factors as accessibility, distance involved in transportation, etc.

Of the two suggested courses, the second appears to be more equitable.

As long as the current situation exists, optimum production from Ontario's potentially exploitable forest area is unlikely. Significant reductions in dues and even more significant improvements in transportation facilities are prerequisites to economic viability.



\$500,000 MIGHT BE SAVED

The Timber Act stipulates that "all Crown timber shall be measured by a licensed scaler or a holder of a special permit at the place of cutting or at a concentration point adjacent to the place of cutting, and no Crown timber shall be manufactured or removed from the place of cutting or from the concentration point before being so measured, without the written authority of the Minister".

This provision was made so that timber cut in license areas could be examined and reported. It would appear to be an outgrowth of early legislation under which royalties or Crown dues were assessed and predates the introduction of corporation taxes. Additionally one cannot overlook that some form of wood measurement is required by the companies themselves for production control. In total it is said to add 2% to pulpwood costs.

The Department of Lands and Forests, in recognition of changing

logging technology, e.g., tree-length logging, has within recent years amended its scaling procedures.

However situations still arise where wood is scaled as many as five separate times — once by the Department, once by company scalers, once more by the trucker, again in the woodyard and, finally, if piece-work rates are involved, for the union.

For the Ontario Department of Lands and Forests, scaling currently represents an annual outlay something in excess of \$1 million which might be considered, in a significant degree, unnecessary as it should be possible to estimate in advance from cutting plans, the cordage cut. Some limited form of governmental scaling, however, is considered essential to relate the estimated to the actual cut.

While even now the matter is receiving active consideration by the Department of Lands and Forests one should not overlook the fact that

wood costs resulting from duplications in scaling procedures are not solely attributable to governmental regulations. Industry and labour must accept a fair share of the responsibility.

However, as an initial study indicates that a saving of well over half a million dollars might be realized by the Department alone in modified measurement procedures, it is recommended that the Department of Lands and Forests proceed with amended regulations as soon as possible.

It is further recommended that any governmental savings so attained be directed towards needed research and forest management.

Logging Tax

ONLY IN THREE PROVINCES

The Logging Tax is peculiar in Canada to Ontario, British Columbia and Quebec. Ontario in 1950 was the first province to impose a separate tax on logging operations which is today 10% of profit in excess of \$10,000. The same rate now applies in Quebec. In British Columbia it stands at 10% of profit exceeding \$25,000.

The method of calculating logging profits complies with the provisions of the federal-provincial tax rental agreements. In 1962 an amendment to the federal Income Tax Act provided for a credit of 2/3 of any provincial logging tax paid up to a maximum of 2/3 of a 10% tax. When the amending legislation was introduced the then Minister of Finance indicated that it was his hope that the provinces would allow the remaining 1/3 of the logging tax to be deducted from provincial income taxes. Subsequently Ontario, as did British Columbia and Quebec, adjusted its legislation to allow a 1/3 logging tax credit against corporation income tax.

The result of the adjustment is that while the logging tax results in no additional financial burden for forest-based companies operating in Ontario, it does divert to the provincial treasury some further contribution toward the cost of Crown land forest management.

Some wood is scaled 5 times — a costly procedure!



ONTARIO'S BIG STAKE

When the pulp and paper industry in Ontario is discussed, particular concern is often voiced for the fine and specialty papers and paperboard segments.

In this particular aspect the province differs from other Canadian paper producing areas. While in excess of 75% of the almost 10 million tons of annual Canadian paper production is newsprint, Ontario, with only one quarter of the total Canadian volume, turns out less than 62% of its production in newsprint and more than 38% in fine and specialty papers and paperboard. Indeed Ontario produces 42% of the Canadian output of the latter papers and paperboards.

Furthermore 91% of the over 8

million tons of newsprint produced annually is exported, 85% to the U.S. However, only 17% of the 2.8 million tons of Canadian-produced other papers and paperboard are exported.

While newsprint is generally traded freely throughout the world, other papers and paperboard are, almost without exception, subject to tariff rates ranging from 15%-22½%. Correspondingly, to protect this sector of our own industry similar tariffs, which range up to 40%, are levied on the import into Canada of other papers and paperboard.

In the face of tariffs imposed by other countries it was Canadian policy to impose equal or higher tariffs to sustain an industry capable of supplying the many paper grades

to meet the needs of a small, scattered, but sophisticated population. In this protected environment a very wide range of paper and paperboard is produced in relatively small quantities and, in many cases, at relatively high cost.

Indeed in our highly flexible fine paper industry firms often produce as many as 150 to 200 different paper grades. However the most recent machines installed by the fine paper producers have an annual capacity of 25,000 to 30,000 tons, compared with 75,000 to 100,000 tons for newsprint machines, which indicates that the whole Canadian market could be supplied by fifteen units.

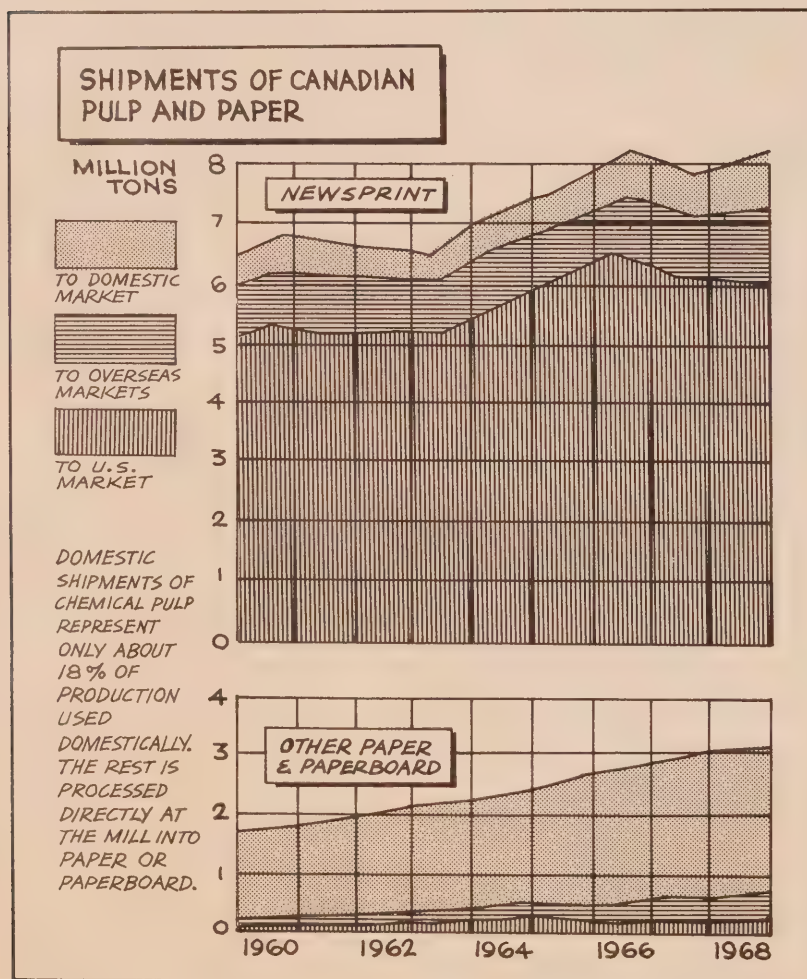
It is the broad range of production grades without sufficient economies of scale that makes the industry much less competitive internationally, regardless of foreign tariffs. In the U.S.A., for example, some machines are scheduled throughout the year for a single grade of paper.

While the many problems with which our forest-based industry is faced also affects this segment, the more basic problem in this case is one of a multiplicity of products. The solution lies in the production structures of the companies concerned.

If Canada, and indeed Ontario, achieved commanding positions in world newsprint production and marketing, it is not unreasonable to expect that similar positions might in time be attained in the production of some fine and specialty papers and paperboard provided an all-out effort is made in that direction and the product range sufficiently limited.

While such action could conceivably mean the importation of lower cost paper grades and might disrupt existing production patterns, it is considered that in the longer term it would be beneficial for the country as a whole. (See article opposite.)

Accordingly, it is recommended that the producers of fine and specialty papers and paperboard be encouraged by the federal government to limit their production to longer run paper grades with a view to achieving competitiveness sufficient to penetrate in volume foreign markets, more particularly European. The federal decision to accelerate the rate of the Kennedy Round of tariff reductions has, of course, made such a move more urgent.



FREE TRADE OPPORTUNITIES WITH U.S.

Columbia Journal of World Business, Sept.-Oct., 1968

Canadians are pursuing their interest in NAFTA through a number of in-depth studies of particular industries. Privately financed, the studies investigate comparative production and delivery costs, marketing problems and opportunities, and transitional and other government policies. A recently completed study covered the Canadian pulp and paper industry.

Pulp and newsprint, which are produced in Canada under internationally competitive conditions of scale and specialization, are largely ignored in the inquiry, which concentrates on the small-scale, diversified, and tariff-protected output of such products as paperboards, groundwood papers, fine papers, and sanitary tissues. The report indicates that Nordic producers could not hope to be significant competitors in North America under free trade except for certain specialty grades, while the efficient North American producers could be cost-competitive in Europe, although they would have a long way to go in establishing marketing channels comparable to those possessed by Nordic producers.

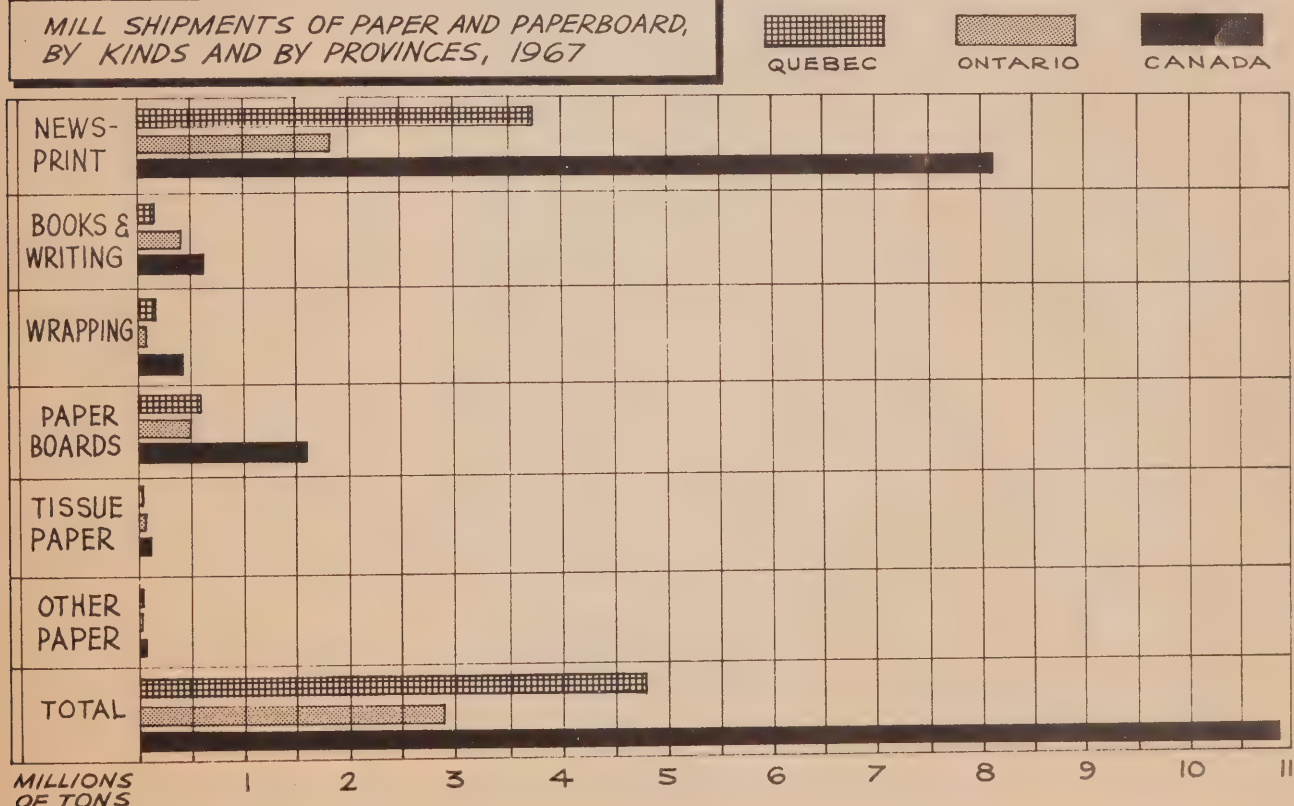
The comparative-cost part of the analysis employs a "hypothetical-mill" technique in which equally large and specialized mills are conceived as operating in various Canadian and American regions. All components of mill costs are estimated in detail, and to these are added hypothetical free trade rail rates

and other estimated delivery costs. It is found that the southern region of the United States has a wood-density advantage that results in a wood-cost advantage over eastern Canada in production of most papers and paperboards. The eastern Canadian producers could offset this with a transport-cost advantage to U.S. market areas down to about the line through New York and Chicago. Eastern Canadian producers would be in about an equal cost position compared with north-central and north-eastern U.S. regions, the slight Canadian production-cost advantages being offset by slight U.S. rail-rate advantages. For eastern Canadian producers, the best lines of specialization under free trade would be: first, sanitary tissues, because the southern U.S. region is absent from the competition owing to its coarse woods and because a lot of electricity is required and is cheaper in eastern Canada than in north-central and north-eastern U.S. regions; second, groundwood papers, which also require a lot of electricity; third, fine papers, where the substantial use of hardwood narrows the density gap between Canadian and southern wood; and least, kraft paperboard and papers, for which southern wood is particularly well suited. British Columbia and the U.S. Northwest would be about equally competitive in western North American markets and would also be, since their wood costs are so low, competitive in Atlantic overseas, as well as Pacific overseas, markets.

Marketing problems would undoubtedly be very great for Canadian-owned producers of hitherto tariff-protected grades. For fine papers and some groundwood papers, distribution channels in the United States are predominantly owned or controlled by U.S. paper concerns. Most sanitary tissues are saleable only as brand names, and U.S. producers possess established positions and economies of advertising. In paperboard, producers usually need affiliations with firms that convert paperboard into boxes. For many kinds of paper, Canadian producers, while having to reduce their range of products in order to economize costs, would at the same time have to maintain a sufficient range to interest distributors and buyers.

Effective transitional policies would be vital to any free trade arrangement for Canadian industries. But the general case for adjustment assistance applies with special force to the pulp and paper industry, because so many of the mills are located in single industry communities that could be seriously injured by dislocations; moreover, these single-industry communities are often located in regions that suffer from above-average unemployment rates. Other important policy issues include incentives to logging mechanization, reform of rail-rate structures, assistance in advertising and sales promotion, and questions pertaining to anti-dumping and anti-combines provisions. Provincial governments would be faced with crucial policy questions concerning the financing of forest access roads, the charges and tenure for timber limits, and the public role in reforestation, fire and insect control, and regional development programs.

MILL SHIPMENTS OF PAPER AND PAPERBOARD, BY KINDS AND BY PROVINCES, 1967



OVER 50 MILLION CUBIC FEET OF TIMBER ANNUAL POTENTIAL SOUTH OF FRENCH-MATTAWA

In discussing Ontario's forest industry most people think largely in terms of the more northern parts of the province, or that area above the French and Mattawa Rivers.

It is not generally realized that there is a major potential in the

southern part of the province. In the area known as Southern Agricultural Ontario, comprising the Forest Districts of Kemptville, Tweed, Lindsay, Lake Simcoe, Lake Erie and Lake Huron, there are in Crown lands alone in excess of 1.5 million acres of

productive forest. Private holdings account for a further 4.2 million acres.

This total area, which in the main has not yet been subject to intensive forest management, now has available an estimated annual allowable cut (all species) of some 200 million* cubic feet of wood.

In addition to, this immediate potential there is another longer term potential.

From 1941 to 1966 some 1,234,200 acres of marginal and sub-marginal farm lands in southern Ontario were alienated from agriculture. In general this is land which should never have been cleared and would have been more productive if left in forest cover.

Under intensive forest manage-

*The Crown portion of this allowable cut has been calculated at 6,010,000 feet annually compared with 161,865,000 cubic feet available from privately-owned land, a ratio of 1:26.9. When it is considered that the ratio of Crown land to patented land is 1:2.6 it would appear, therefore, that the volumes available are extremely disproportionate. While a partial explanation can be provided in age-class distribution of the primary growing stocks on the respective lands, it does not explain entirely the discrepancy.

The foregoing anomaly is revealed in the actual cut on Crown lands which even now is almost twice that of the calculated allowable cut.

A more realistic allowable cut on Crown lands in this area would be in the range of 40 million cubic feet per year for a total available in Southern Agricultural Ontario of some 200 million cubic feet annually.

This additional 34 million volume (40 million less the calculated 6 million) would currently provide sufficient pulpwood to supply a pulp mill of 200,000 tons rated capacity.

—See "The Forest Resources of Ontario", Department of Lands and Forests, 1963.

Mature stand in the Great Lakes - St. Lawrence Forest.



ment and using the most suitable species, e.g. red and white pine, it has been calculated that this area on a rotation basis could, within 25 years, through thinnings alone, provide annually some 400,000¹ cubic feet of pulpwood, sufficient to operate two large pulp mills. On the same basis the same area could, within 70 years, provide additionally close to 50,000,000 cubic feet of sawtimber annually.

Some of the above-mentioned lands have already been incorporated into agreement forests under The Trees Act. However in somewhat over 50 years the total so accumulated is only about 218,000 acres.

Rightly to be considered with these lands, on the basis of forest-type, climate and general topography are the Forest Districts of Pembroke and Parry Sound.

Pembroke Forest District has been calculated to have 2,176,322 acres of Crown and 387,359 acres of privately-owned productive forest land. In 1967 this area produced from Crown lands alone 15.8 million cubic feet of wood, or only an average of some seven cubic feet per acre, a figure well below the calculated annual increment for the slower growth boreal forest which is in the range of 19 cubic feet per year.

The Parry Sound District with some 16 million acres of Crown and 1.2 million acres of privately-owned productive forest land was last calculated in 1953 to have an annual allowable cut on Crown lands of some 9.8 million cubic feet. At that time some 16.1 million feet were actually being cut from these lands and in 1967 the total reported had dropped significantly to the range of 5 million cubic feet. Again, in an apparent anomaly, it was calculated that an area of some 400,000 acres less than the Crown lands would provide an annual allowable cut almost six times larger than that available from the Crown lands viz., the annual allowable cut from privately-owned lands was set in 1953 at 47.5 million cubic feet (all species). Figures relating to actual cut are not available.

Indicative of the potential of both of these forest districts might be Al-

gonquin Park. Totalling 2,910 square miles or 1,862,400 acres, there is at present an annual allowable cutting area of only 17,719 acres or 0.95%.

In 1967 the cut in the Park was as follows:

Sawlogs (incl. veneer)	14,461,000 cubic feet
Poles	440,000 cubic feet
Pulpwood	4,454,000 cubic feet
for a total cut of 19,355,400 cubic feet, net merchantable.	

Indeed this relatively small area of 17,719 acres provided that year 4.5% of all the softwood cut on Crown land in the province and 29.8% of the hardwood.

Forest development on this scale could be directed throughout the entire area south of the French-Mattawa. This total area of potentially productive forest land, including some 5.4 million acres of Crown and 7 million acres of privately-owned land, if intensively managed,

could provide an annual allowable cut in the range of 360,000,000 cubic feet or close to today's present cut on all provincial Crown lands.

Moreover one should not overlook the proximity of these areas to "tide-water" and the already available access, an aspect that is already seriously biting into our international competitiveness by reason of the problems of access and haulage costs from northern Ontario.

However if one is to examine these forests fully one is aware that they form only one part of a large contiguous area, the Great Lakes-St. Lawrence Forest which, as seen in the following diagram, extends westward beyond the Great Lakes to the Manitoba border.

It is in this area of high growth rate that our greatest potential lies and every effort should be made to capitalize on the opportunity it provides.



¹"The Economics of Intensive Forestry in Southern Ontario" — D. V. Love. RPF.



The square timber industry — scoring and hewing in 1890, the St. Lawrence Corporation. Below, a square timber raft prepares to sail down the Ottawa River in 1878.



ONTARIO WOODLANDS OVER THE PAST THREE CENTURIES

When Europeans first penetrated the Upper St. Lawrence region they found what was then considered an unlimited forest. Vast stands of virgin timber stretched westward throughout what was to later become Upper Canada.

The area south of the Laurentian Shield, in what is now Ontario, was largely covered with mixed hardwoods and conifers and a smaller area, in the southwest north of Lake Erie, was in carolinian hardwoods. The Ottawa Valley was noteworthy for its heavy stands of pine which had come about through fires sweeping through the area in earlier times.

Northward stretched what seemed limitless stands of spruce fir and pine forests. When the Ottawa pineries were being voraciously cut for export timber the southwestern hardwoods were being cleared for farmlands. In this latter regard the rate at which these hardwoods were cut and burned might best be judged from the records which show that by the mid-1800's tens of thousands of tons of potash, extracted from hardwood ash, moved annually through the Welland Canal to British and European markets. In fact, to the early settler the forest meant little more than a source of fuel and shelter and was largely considered an obstacle to be overcome in clearing the land.

The history of our forests has been compressed into a brief span of somewhat over 200 years and in that time few, if any, of the original southernmost stands remain. However, as we follow the course of events that have led to the present state of our forest-based industry, we should be ever mindful of the contribution that the harvested forest has made to development of the Province. It was our initial major source of growth capital,

which was followed and supported by the generation of capital from productive agricultural lands and resulted in the present manufacturing potential of Ontario.

The Colonial Eras

Under the seigniorial system the French crown granted large tracts of land to individuals who, in turn, allocated them to tenants under varying conditions, on many occasions conditions not pertinent to the original grant. The use of the land for agriculture was of primary concern and for timber almost negligible. As early as 1683, however, all suitable oak was reserved for the use of the French navy.

This latter regulation was the cause of later difficulty, preventing the clearing of land. There were many recorded instances where the cutting of such timber by colonists gave grounds for official complaint.

In 1763 Governor James Murray arranged for the survey of townships and the setting aside of adequate reserves of timber for fortifications and barracks for the army and navy and for naval timber. Mentioned specifically was the area between Lake Champlain and the St. Lawrence River. It was to be set aside as a reserve for "masting for the Royal Navy and other useful and necessary timber for naval constructions".

In 1775 Sir Guy Carleton was advised that "it is our will and pleasure, however, that no grant be made to any lands on which there is any considerable growth of white pines fit for masting for our Royal Navy, and which lie convenient for water carriage, but that you do cause all such lands to be set apart for our use, and proper regulations made, and penal-

ties inflicted to prevent trespass on such tracts, and the cutting down and destroying of the trees growing thereon".

Early licenses to cut timber in Canadian forests were granted by the British government to contractors for the naval dockyards. There is ample evidence that they took advantage of the privilege extended to them and supplied other timber to the British market under their guise of operations for the dockyards. The principals in such contracts appointed local agents in Canada who reaped rich rewards.

The trade was given a major impetus in the early days of the Nineteenth Century when Britain turned to Canada for timber when Napoleon shut off supplies from the Baltic.

British Protective Tariffs

A heavy duty was later imposed on foreign timbers as a revenue measure to help pay for the Napoleonic Wars. These duties were afterwards retained with the avowed purpose of protecting and fostering colonial trade. Statistics of that period indicate that the duty was very effective in curtailing the flow of timber from Europe, particularly from the Baltic states, and building up for Canada a timber export trade.

The protection was reduced in subsequent years until in 1864, during Rt. Hon. W. E. Gladstone's term as Colonial Secretary, it was lowered to a point where it was presumed to meet only the differential in freight rates between the Baltic states and Canada. It was later to disappear but the Canadian timber trade was by then established so solidly that it was able not only to meet foreign competition, particularly that of the Bal-

tic states, but even to expand in the face of such competition.

Introduction of Regulations

There seem to have been no Canadian laws governing the timber trade prior to 1805 when Lower Canada enacted certain regulations, mainly concerning the measurement and floating of timber in the St. Lawrence River. The earliest enactments in Upper Canada appear in 1819 and refer to the placing of a duty on timber imported from the United States. Until this time United States exporters had the advantage of the colonial preference in the British market.

The matter of holding timber suitable for the Royal Navy was still very much a governing factor and instructions to the Duke of Richmond, Governor-in-Chief at that time, were very specific with regard to setting aside such reserves.

Up to and including the first quarter of the Nineteenth Century, the forests of both Upper and Lower Canada were looked upon as a source of supply of timber for the navy and, incidentally, as a source of profit for the individual privileged to take part in the trade. The country derived no direct revenue in the way of stumpage or rentals, and local enterprise was stifled unless it was under the auspices of an accredited agent of the contractors for the naval dockyards. Naturally such conditions created a "black market" in which illicit lumbering operations flourished and eventually resulted in the abolition of the dockyard contractor's monopoly.

Private Cutting

In 1826 Sir Peregrine Maitland, Lieutenant-Governor of Upper Canada, directed that British subjects resident in Upper Canada might cut timber in the unsurveyed portions of the Ottawa River watershed.

A series of dues based on the number of logs cut was established. In order to discourage the cutting of immature timber, double dues were imposed on logs which would not square more than eight inches.

In 1827 the Commissioners of His Majesty's Treasury appointed Peter Robinson as Surveyor General of Woods and Forests in the Province of Upper Canada and provided that, in May of each year, he should report which districts contained timber con-

sidered not "fit and proper for His Majesty's Navy and, therefore, might properly be felled by His Majesty's subjects".

Introduction of Stumpage Fees

Public auctions of these lots of timber were started and stumpage rates set. Each license was for a quantity not exceeding 2,000 cubic feet. Unfortunately the Surveyor General did not follow his rather explicit instructions and many irregularities were permitted with considerable financial loss to the young province.

Distribution of Crown Lands

In defiance of both the letter and spirit of the instructions repeatedly issued by the home government, the

government of the day deviated from the principles of sound national economy and good business administration. Public lands were widely distributed to favourites, causing great harm to the new settlements in that normal development of agriculture was seriously hampered. The dissatisfaction that followed was one of the many causes of the Rebellion of 1837.

Lord Durham's exhaustive investigation and report on existing abuses focused attention on the profligate manner in which land was dispensed to friends and legislators. Some legislative councillors received grants of 5,000 acres with an additional 1,200 acres for each child, the only cost being the fees paid to officials who drew up the deeds.

Firing forests was a frequent method of land clearance.



The setting aside in Upper Canada of one seventh of the land for clergy reserves aggravated the situation. In one special instance a private company received entire control of 1,100,000 acres of choice timber in the southwestern part of Upper Canada.

The result of the alienation of such large areas of public domain to private ownership was inevitable. Speculators could buy timber from owners who had acquired these areas for much less than the stumpage dues charged for an equivalent amount of timber cut on Crown lands.

Widespread forest fires, due mainly to land clearing operations of settlers, seem to have persisted throughout this period with little organized effort to meet the situation. The clearing of land for agriculture, and possible rightly so under the economic conditions of the times, was apparently considered much more important than any effort at forest conservation.

Crown Timber Act

Over-production in the immediately preceding years, as a result of a brisk demand and high prices for timber in the British market, created in 1847-48 a period of depressed timber prices. As a result, in 1849 a Select Committee on the Lumber Trade was appointed by the Canadian Legislature of the United Province of Canada. The Committee drew up the first Crown Timber Act which was passed that year under the title, "An Act for the Sale and Betterment of Timber upon the Public Lands".

The Act provided that the Commissioner of Crown Lands might grant licenses at such rates and subject to such conditions, regulations and instructions, as might be established from time to time by the Governor of the Province upon the advice of the Executive Council. These licenses were granted for only twelve months and provided for proper returns of timber cut.

The accompanying regulations specified the sizes of limits, the Crown dues (stumpage) to be paid and for the renewal of those licenses with which a holder had complied. They also guarded against speculators holding timber berths by stipulating that, in all seasons not specifically excepted, the operator must cut at least 500 cubic feet of timber

or 20 saw logs per square mile of limit on larger holdings, with somewhat higher production on areas of four square miles or less.

Introduction of Ground Rent

Subsequent regulations, promulgated in 1851, indicated that considerable timber stealing was going on and stiff penalties were provided for squatters and others taking forceful possession of disputed lands and for interfering with surveying, etc. An annual ground rent of two shillings and sixpence per square mile of limit was introduced and provision was made to ensure the payment of dues for timber slideage and Crown dues generally. Logs exported from the province, presumably to the United States, were assessed at double the rate of Crown dues on domestic production.

Continuing Concern with Fires

Forest fires were a matter of grave concern a century ago and a bill was introduced during the Session, 1854-55, "for the protection of the forests and preventing the setting of fires to the woods for the purpose of clearing lands". This bill was dropped when a Select Committee was formed "to examine and report upon the present system of management of the public lands and the various dues arising therefrom, together with the present mode of selling, leasing and otherwise disposing of the same, to report thereon with all convenient speed, with power to send for persons, papers and records".

Clash of Vested Interests

Conflicting testimony presented to this Committee emphasized the clash of interests between the operators producing square timber and the sawmill operators, as well as between those interested in the sale of land and those concerned with perpetuating the forest. For the first time the folly of allotting sub-marginal land to settlers, allegedly for agriculture, was discussed publicly. The separation of forest lands from agricultural lands, by means of forest surveys, and the prevention of timber-mining by "professed" settlers, was even then advocated.

The attitude towards hardwoods on the part of pine operators was forcibly expressed before the Committee by one witness, James Henry Burke of Bytown, as follows:

"But mark this coincidence! Sur-

rounding this pine territory and contiguous to the great lumber fields is the large area to which we have alluded, possessing a fertile soil and timbered with hardwood. This timber has not the value of pine, and its destruction is not a national loss."

The Select Committee did not apparently make recommendations. It referred the evidence to the Legislature and suggested another Select Committee of the House at the next session.

Subsequent Orders-in-Council seem to have been aimed at emphasizing that the payment of ground rent did not create a vested right which would preclude the imposition of new conditions or of increased payments for rentals or Crown dues.

Squatters and Timber Stealers

Considerable embarrassment to the government was caused by the squatters and timber-miners in the late 1850's and early 1860's and unwise regulations helped to destroy much good timber. Although settlers might cut down and burn timber for land clearance, they could be treated as trespassers if it was sold. Timber stealing was widely practiced and dealers were known to allot contracts up to 100,000 cubic feet of hewn timber to individuals who did not possess any timber-holdings.

A Select Committee was appointed by the Canadian Legislature in 1863 to enquire into the rapid destruction of the forests but did not go too thoroughly into the subject. Another committee, appointed the following year to complete the work, never made a report. Representatives of the forest industry were prominent on both committees.

Confederation

With the enactment of Confederation in 1867, a subject designated exclusively within the scope of provincial government was "the management and sale of public lands belonging to the province and of the timber and wood thereon".

Although there is evidence that much thought was given to a solution for the troubles besetting land settlement and forestry, the problems seem to have persisted.

Destruction of Hemlock Forests

The destructive forest exploitation of this period led to an enquiry in



(Left) Real horsepower drew many a load of 24-30 inch sawlogs.

1868 when a Select Committee of the House of Commons studied the shipment of hemlock bark for tanning purposes to the United States. Some 100,000 cords of bark were exported annually. To provide this volume some 10,000 acres of forest were denuded with the timber left to rot on the ground which constituted a serious fire hazard after the bark had been removed. The Committee recommended that an export tax of \$1 per cord be placed on hemlock bark to curb the drain on the forests. It made note that each area involved would be cut out in ten to twelve years, leaving the community without a continuing income from tan-bark production.

Petitions to the federal government by exporters and other vested interests killed the efforts of the Committee and with them the hemlock forests of Ontario and Quebec. The government took no action when the operators involved put forward the arguments of the exporter, viz., employment provided, wages distributed, impetus to other industries, etc.

Export of Sawlogs

A Select Committee of the Ontario Legislature of 1868 dealt with the export of sawlogs, shingle-bolts and stave-bolts. It does not appear to have ever rendered a report. The in-

terests involved in export might be said to have been extremely well served in the legislature of the country as well as in the United States.

A Select Committee of the federal government in 1874 explained the export duty on sawlogs as a protection for Michigan timber operators, a detriment to Canadian settlers and as only of slight benefit to the Canadian sawmilling industry. The result was that in 1875 the export duty on stave-bolts and oak logs was removed.

Export duties on shingle-bolts, spruce logs and pine logs were changed at various times in the '80's but after some negotiating, which might be termed "horse trading", between the sawmill operators and the log exporters, the government announced in 1891 the removal of the tax on logs exported to the United States.

The same year an export duty of \$1 per thousand board feet measure on Canadian lumber was also abolished. Free trade in lumber and logs between Canada and the United States came into existence. This situation had only existed some two years when a business depression hit the United States which re-imposed a duty of \$2 per MBFM. It acted as a protection for the Michigan operators, who increased their imports of logs from the Lake Huron forests of Ontario to be sawn in the United States instead of as formerly importing lumber from Canada.

The pleas of Ontario lumbermen,

Sails set for the wind on a square timber raft. The shantymen lived aboard.





Slidage tolls were charged to raft timber around rapids such as those below Chat Falls on the Ottawa River.

particularly those from Western Ontario who were hardest hit, were finally listened to and in 1898 the provincial government passed regulations making provision that all logs cut on Crown lands should be processed in Canada. United States operators immediately claimed breach of contract on the part of the government and that, in any event, the regulations were ultra vires of the provincial government. The case was heard in 1899 with judgment in favour of the province.

Ontario Expansion

Logging in Ontario was centred initially in the Ottawa Valley and on streams flowing to Lake Ontario and Lake Erie. Rapid development of the sawmilling industry necessitated a westerly expansion, and in 1871 the Muskoka-Parry Sound area was opened up for the sale of timber licenses. The following year the industry spread along the south shore of Georgian Bay where it flourished for some decades, although there are few operators now left from that tremendous surge of development.

Introduction of Diameter Limit

Diameter-limit cutting regulations were first introduced in Ontario in

1871 when, by Order-in-Council, a minimum diameter of 13 inches on the stumps was decreed. The only species being cut in quantity then were the white and red pines, white spruce, oak and hemlock (for bark). In 1939, under the Trees Act, regulations pertaining to diameter-limit cutting were vested in individual counties.

Floating Logs and Marking

As a result of competing operators floating logs in the same streams, an Act Respecting the Marking of Timber was passed by the Ontario Legislature in 1870. Regulations were made to prevent the duplication of marks and severe penalties provided for misappropriation of timber so protected.

For a long time rival operators disagreed considerably concerning the use of streams. The operator originally improving the river by the removal of rocks from rapids, the construction of booms, piers, slides, etc., claimed prior and sometimes exclusive rights. Previous legislation had not clarified this situation and, in 1881, the Ontario Legislature enacted The Streams Bill. It provided that all operators might use such improve-

ments and have passage along the banks of any drivable stream, upon the payment of proper tolls.

A test case concerning these rights (McLaren and Caldwell) was fought in 1881 and, although the Dominion government disallowed The Streams Bill each time it was presented by the Ontario government in 1881, 1882, and 1883, an appeal to the Privy Council by Caldwell was settled in his favour in 1883. When it was again presented before the Dominion government in 1884, it was allowed to stand until it was replaced, in 1887, by a more comprehensive Act. From that time there has been little alteration to legislation concerning the joint driving of streams.

An Act for the Licensing of Cullers, adopted by Ontario in 1890, provided for more adequate statistical returns and standardized methods of measurement.

Forest Fire Legislation

The forests of Ontario seemed to have been plagued by fires from the earliest days of settlement. Reports to the various governments with regard to this matter appear as early as 1849. In a report of the Superintendent of Woods and Forests, in 1859, the question of forest fires was forcefully drawn to the attention of the government, particularly in view of the extensive prospecting for gold which appeared imminent.

In 1878 an Act to Preserve the Forest from Destruction by Fire was passed by the Ontario Legislature. It contained many clauses necessary to prevent the setting of fires, but it proved difficult to enforce, owing to a lack of supporting personnel.

It was only in 1885 that a fire-prevention organization, consisting at first of 39 rangers, was inaugurated. From this modest beginning it has expanded tremendously in size over the years until today some 2200 personnel are employed at peak season.

Opening of the Boreal Forests

Exploitation of Ontario's forests was confined to the production of sawlogs, tanbark, ties, poles, etc., until after the turn of the century when the utilization of wood for the manufacture of pulp began to assume considerable proportions. The opening of the Temiskaming and Northern Ontario Railway in 1903 and the construction of the Grand Trunk Pacific Railway across the north shortly



Pulpwood camp 22 miles west of Chapleau in the boreal forest, 1919.

afterwards, gave a significant impetus to pulpwood production and the construction of mills in that area.

Clearing of Land

From the days of the earliest settlements in Ontario records indicate that, although the lumbering industry invariably forged ahead of settlement, cutting operations were always closely followed by settlers who intended to stay on the lands.

Unfortunately, in addition to this stable group, there was always a host of "professed" settlers or timber high-graders who had little if any intention of remaining to cultivate the soil. They quickly stripped their allotted farms and moved on. Until fairly recent times little effort was made to confine their activities to land which could be maintained in agriculture after its forest cover was gone. A look at the annual sales and free grants of land to these so-termed settlers, with the accompanying cancellations of lands previously allotted, indicates the widespread ramifications of these practices.

A Select Committee in 1863 reported and recommended: "It appears from the evidence that settlement has been unreasonably pushed in some localities quite unfit to become the permanent residence of an agricultural population. Especially has this been the case on some of the free grant roads and adjacent country, lying between the waters of the

Ottawa and Lake Ontario. Your Committee would refer to the evidence and recommend that the government should, in all cases, ascertain positively the character of the country before throwing open any tract of land for settlement, so that such lands that are not really fit for profitable cultivation may not be thrown upon the market. There being considerable diversity of opinion among the witnesses in regard to some of the localities adverted to, it seems to the Committee that the government should have an examination made by some thoroughly competent and reliable officer, whose report would be available in any further consideration of this subject".

Although this question was raised some 80 years ago, it is only today receiving the attention it deserves.

Growing Awareness

People, however, gradually began to realize that our forests were being cleared with no thought for the future. In 1871 Sir John A. Macdonald, as Prime Minister, wrote to Hon. J. S. Macdonald, Premier of Ontario, saying: "We are recklessly destroying the timber of Canada, and there is scarcely a possibility of replacing it".

By 1879 the situation had become sufficiently critical for the Ontario Fruit Growers' Association to report



NOTICE.

NOTICE IS HEREBY GIVEN that the following townships in the district of Nipissing, viz., PECK, HUNTER, DEVINE, BIGGAR, WILKES, CANISBAY, McLAUGHLIN, BISHOP, OSLER, PENTLAND, SPROULE, BOWER, FRESWICK, LISTER, PRESTON, DICKSON, ANGLIN and DEACON have been set aside as a public park, forest reservation and fish and game preserve, under the name of "The Algonquin National Park of Ontario," by virtue of 56 Vic., chap. 8. The said Act strictly prohibits:

1. Carrying or using firearms or explosives within the Park, except as provided by regulations.
2. Hunting or trapping therein.
3. Fishing with net, trap, spear or night line.
4. Fishing with hook or line without license from the Commissioner of Crown Lands.
5. Mining exploration or prospecting for minerals.

The Superintendent of the Park and the Park Rangers are charged with the duty of enforcing the said Act, and are empowered to arrest and bring to trial or remove from the Park, any person found violating the same, or carrying or having in his possession any fishing nets, traps, spears or night lines, firearms or explosives, and to seize and confiscate the same.

The penalty for violating the said Act is a fine not exceeding \$100 for each offence, or in default of payment thereof, imprisonment for a term not exceeding three months.

All persons are required to govern themselves accordingly.

The co-operation of the public is invited in preserving the timber, game and natural beauty of the Park, and in carrying out the objects for which it has been established.

A. S. HARDY,

Commissioner of Crown Lands.

Toronto, 27th Sept., 1898.



that the Association should "put forth their best efforts to husband our dominion and provincial resources in timber limits — to carefully instruct the farming community how much depends on judicious planting of forest trees, their presence producing abundant rainfall, preserving and distributing moisture and thereby forming a preventive against drought and devastating floods".

Forest Reservations

It was very largely in recognition of this situation that one of our more important lower Laurentian watersheds, already badly burned and cut over for red and white pine, was set aside in 1893 by the Government of Ontario as a reservation. This was Algonquin Park, embracing the headwaters of the Muskoka, Madawaska and Petawawa Rivers.

In 1898 the Forest Reserves Act was enacted and the following year some 80,000 acres in Frontenac, Lennox and Addington counties were designated as forest reserves.

Start at Reforestation

In 1900 a forestry committee was appointed by the Ontario Agricultural and Experimental Union which recommended that denuded and blow sand areas in "Old Ontario" should be reforested by the Department of Crown Lands and, by 1904, the government had decided to establish a forest nursery at Guelph. In 1908 a modest start was made in Norfolk County to reforest the waste lands of southern Ontario. Involved were some 100 acres of Crown Lands in Walsingham Township.

Counties' Reforestation Act

By 1911 public support for reforestation programs had moved forward to the point that the Legislature enacted legislation entitled The Counties' Reforestation Act. This Act, incorporating many amendments over the years, is known today as the Trees Act under which any municipality might purchase land, carry on development and management of these areas, and either enter into an agreement with the Crown, or carry on the planting and management of the forest without agreement.

In 1912 extension work in reforestation was transferred from the

Department of Agriculture to the Department of Lands and Forests.

Simcoe County, in 1922, was the first county to take advantage of the legislation and purchased for reforestation some 1,000 acres of waste land in Vespra Township. By 1930 municipal forests had also been established in York, Ontario, Northumberland and Durham Counties. Today 217,326 acres throughout the province are in agreement forests.

Pulp and Paper Industry

About this time the pulp and paper industry, which had been heretofore



Thompson Paper Mill in 1870 at Newburgh on the Napanee River.

overshadowed by the sawmilling industry, began to gain pre-eminence.

While Ontario's first paper mill had been built at Crook's Hollow (now Greenville) some time between 1813 and 1825 (the actual date is uncertain), no wood was required in the process. Paper at that time was made almost entirely from rag.

Around the mid-1800's processes for producing paper from wood became available and pulpwood began to be cut for mechanical (groundwood) pulp. In 1869 Canada's first chemical pulp mill, a caustic soda process, went into operation at Windsor Mills, Quebec.

By 1871 some twelve paper mills were in operation in Ontario compared to seven in Quebec. The total paper production for Canada that year does not seem to have exceeded 10,000 tons. By 1881, however, annual production had increased to 25,000 tons.

Further development of wood pulping processes led in 1887 to the production of pulp at Merriton, Canada's first sulphite pulp mill.

As paper production from wood fibre became more economical many of the companies producing rag paper closed down. In 1891 only three paper mills were producing in

Ontario compared with 24 in Quebec. However, by 1900 annual production in Canada had risen to almost 100,000 tons of paper and paperboard.

Between 1900-1907 the industry began to move towards specialization in newsprint production. It is only from this time that accurate data concerning the industry can be gathered, detailed statistics being collected in 1908 for the first time.

So marked was this trend to specialization that by 1917 newsprint accounted for 80.6% of Canada's total paper production. By 1938 it had risen to 82.1% and in 1967, some 8,031,000 tons annual production, stands at 75%. Ontario with a total of 4 pulp mills, 23 pulp and paper mills, and 12 paper mills accounts for 22% of Canadian newsprint production.

Forest Inventories

A systematic provincial forest inventory was started in 1919 and by 1930 some 48 million acres had been surveyed. This onward-going program resulted in a complete survey being carried on between 1946-59 and the publication, in 1963, of *The Forest Resources of Ontario*.

Northern Ontario Reforestation

Heretofore concern had been largely directed to "Old Ontario" but in 1928 greater attention began to be

given to restocking cut and burnt-over areas in northern areas. That year planting was started in Kirkwood Township, north of Thessalon, and by 1943, some 6,000 acres had been restocked. This experiment had been sufficiently successful that on November 2, 1943, an additional 14,000 acres were added and set apart as the Kirkwood Forest Management Unit.

Conservation Authorities Act

Following a series of devastating floods in southern Ontario during the 1930's, a conference was held in the spring of 1941 at the Ontario Agricultural College, Guelph, to develop a program aimed at the conservation of natural resources. As a result, a federal-provincial agreement was reached for collaboration in a sample or type-survey with the Ganaraska watershed in Durham and Northumberland Counties being selected.

Subsequently in 1946 the Conservation Authorities Act was enacted to undertake "reforestation of watersheds and conserve water, prevent erosion and ameliorate floods". The Department of Lands and Forests, under the Trees Act, is enabled to enter into agreements with conservation authorities for reforestation similar to those with municipalities.

The 1947 Royal Commission

Mounting concern with the future of our forest-based industries, brought into closer focus by reason of significantly increased cuts throughout World War II, resulted in 1946 in the creation of the Royal Commission on Forestry. The Commission was asked "to investigate, enquire into and report upon the forest resources of Ontario and their conservation, management, development and beneficial utilization for all purposes". Its final report was submitted on May 12, 1947.

Two major areas of concern, as seen by the Commission, involved the export of unprocessed pulpwood and the rational development of Ontario's forest resources. It recommended a discontinuance of pulpwood exports and the formation of Forest Operating Companies to achieve optimum development.

This latter proposal, probably one of the more significant made by the Commission, was not accepted by the government and forest-based industry of that day and was not implemented. However, amending legisla-

Reforestation on burned over sand hills near Beardmore.





Machine planting in the Moira Conservation Authority Forest, Hastings County.

tion was enacted shortly after to control the export of pulpwood from Crown lands which from a peak volume in 1947 of 771,243 cords valued at \$12.8 million declined to 246,612 cords valued at \$5.9 million in 1967.

Forest Management

By 1954 the Ontario Department of Lands and Forests had become increasingly involved with the optimization of forest resources and the development of long range plans "for the more complete and wise use of the renewable resources".

That year, in a departmental White Paper outlining the problems and proposing longer term plans for improvement, note was made that in northern Ontario "black spruce is already being heavily overcut" and remedial action was required.

In the period following, 1954-58, new forest nurseries were started in northern Ontario and the major reclamation of cut-over and burned areas in that region was started.

Reforestation and regeneration had, heretofore for 10 years, within The Timber Act, been held to be the responsibility of companies operating on Crown lands. However, in many cases, largely through lack of enforcement, little had been accomplished. Faced with increasing areas requiring treatment the Department of Lands and Forests in 1961 assumed responsibility for regeneration on

Crown lands and today enters into agreements with the companies concerned, "for the promotion and maintenance of the productivity of the licensed areas".

Woodlands Improvement Act

Finally, recognizing the economic importance to the province of the increasing number of privately-owned forest lands, the government enacted in August 1966 The Woodlands Improvement Act. This legislation allows the department to "enter into agreements with the owners of lands that are suitable for forestry purposes and that are situate in a private forest management area for the planting of nursery stock or the improvement of the woodlands on such lands". In the short space of time since the Act has been in effect the department has entered into over 1,015 agreements, planted in excess of 2.6 million trees and treated 26,000-30,000 acres of private woodlands.

Summary

Throughout the history of forestry in Ontario there is one point that comes through clearly. Public concern with our forest resources seems only to have been aroused by crisis.

- After a large number of serious fires had swept through "Old Ontario", as a result of logging malpractices, legislation was enacted to control fires.
- After the sand soils in southern Ontario had had been clear-cut, be-

come unproductive and begun to blow away, reforestation was started.

- After water supplies from the lower Laurentian formation began to be seriously affected, forest reserves were created.
- After the forest cover in southern Ontario had virtually disappeared, The Counties Reforestation Act was passed.
- After our timber supplies began to be seen as limited, a systematic forest inventory was taken.
- After it became evident that large areas in northern Ontario were no longer productive, restocking of cut and burnt-over areas was begun.
- After a series of disastrous floods in southern Ontario, as a result of denuded watersheds, the Conservation Authorities Act was introduced.
- After the economic implications of the export of pulpwood became apparent, controls were introduced.
- After departmental surveys indicated clearly that the more valuable softwoods in northern Ontario were being overcut, a major effort was made at reforestation in this area.
- After it became apparent that companies operating on Crown lands had failed to carry on adequate

regeneration, the Department of Lands and Forests assumed direct responsibility for this aspect.

- And, after the future supply of hardwoods from southern Ontario could be seen to be extremely limited, the Woodlands Improvement Act was passed.

Today Ontario's forest-based industry is entering a complex phase in which our forests are regarded as an asset which could help us meet many of our desirable economic objectives.

One area of management still lagging, however, relates to securing and optimizing long-range yields of forest products to ensure a continuing share of world markets.

In face of current pressures on this industry, will it take the loss of a major market before the industry and the public becomes sufficiently concerned?

Evolution of the Department

In 1860, under an Act Respecting the Sale and Management of the

Public Lands, a Department of Crown Lands was reaffirmed. However, it was now to incorporate the Office of the Surveyor General. The Department was to be under the direction of a Commissioner of Crown Lands.

The Act was superseded in 1877 by the Public Lands Act and the Department of Crown Lands, while still "presided over by 'The Commissioner of Public Lands' for the time being", was given broader responsibilities which included management of forests.

The name of the department we know today began to emerge in 1905 when the Department of Crown Lands became the Department of Lands and Mines. At that time a Minister of Lands and Mines was appointed to replace the Commissioner. The following year it was enacted that the department be titled

the Department of Lands, Forests and Mines.

It should be noted, however, that throughout the foregoing period extension forestry had been carried on within the Department of Agriculture. It was not until 1912 that this function was transferred to the Department of Lands, Forests and Mines whose responsibilities had been, heretofore, largely limited to the sale of land and the disposal of Crown timber.

In 1920 the Department of Mines was formed as a separate entity and the Department of Lands and Forests emerged with its present name and largely the responsibilities it holds today.

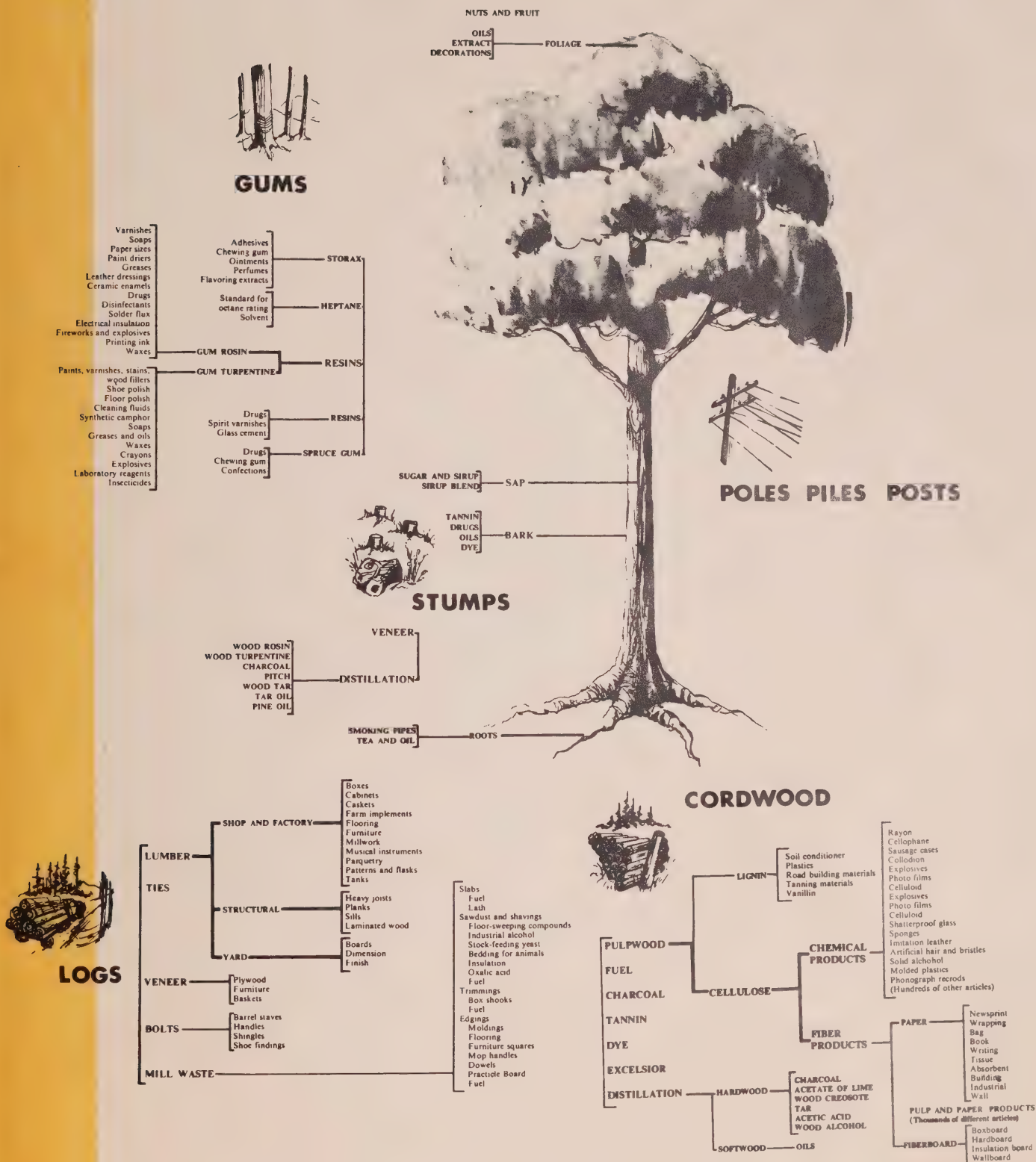
The most recent major adjustment occurred in 1947 when the Department assumed the functions of The Department of Game and Fisheries which ceased to exist.

All photographs courtesy Ontario Department of Lands and Forests Archives.



Sixty-five years ago at Red Gut Bay, Rainy Lake, men and boys harvested a giant crop from Ontario's forest. The lumbermen are gone but the trees are on their way back.

What we get from trees



A forest is, in a very real sense, a comprehensive rural community.

It has a life apart from man yet one which makes a significant contribution both to man's environmental needs and to his earning capacity.

The forest community has many citizens, animate and inanimate. It has trees, some aborning, others maturing, still others sick or dying from pestilence, wind or fire. Its bird, animal and insect population vary with the nature of the forest. The fish of its streams and lakes live or die in waters pure or polluted by the thoughtlessness of man.

Like most other communities, forests are dynamic. While they have a balance of growth, they do not stand still. Indeed over centuries the most fertile white pine seed beds are prepared by massive fires. The heat of flash fires opens the seed cones of the jack pine.

But we have come to see the forest fire as the enemy of our forests, as well as the destroyer of beauty and of wood-based employment.

Nature wiped out tangled silvicultural slums by periodic administrations of fire. Today man tries to do a similar job by what he calls forest management.

Each, in its way, is a form of community renewal. Selective cutting or clear cutting in defined blocks, the control of undergrowth, planting trees which provide marketable timber within the most economic growth cycle, effective multi-purpose use both for recreation and cropping, each of these can now be scientifically planned and accomplished.

Furthermore we know from proven research that a variety of age classes and species within a forest can significantly increase the population of its birds and animals.

So Ontario, as every other jurisdiction in which science has turned its hand to management of natural resources, seeks to combine selective cutting of mature timber, the preservation of aesthetic and recreational values, and the provision of a proper wildlife habitat.

Given men of understanding and goodwill, and an adequate investment in research, these three goals are not incompatible. On the contrary, it may be more difficult than we yet realize to accomplish one without the others.

— William H. Cranston



